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**REPORT ON THE VISIT TO
THE FACULTY OF VETERINARY MEDICINE OF
PERUGIA**

20 - 25 November 2006

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INTRODUCTION

The Faculty of Veterinary Medicine of Perugia (FVMP) was visited by the team of experts from 20 – 25 November 2006. During this evaluation they visited the facilities, looked at the teaching resources that were available to the Faculty, and had discussions with academic and support staff, students, alumni and local practitioners, as well as several meetings with the Dean and other senior staff from the Faculty and University. This was the second European evaluation of the FVMP, the previous visit having taken place in November 1998

Three months prior to the visit, the experts had received a Self-Evaluation Report (SER) and the supporting documentation, which had been prepared by a panel of six Faculty members and a co-ordinator under the supervision of the Faculty Dean. Details in the SER were supplied by the staff members of the Departments and the Faculty, as well as by administrators of the University of Perugia. Each expert was assigned specific chapters of the SER related to their particular area of expertise to study and evaluate in greater detail. Further information relating to each of the chapters was obtained during the visit itself.

The main changes since 1998 are:

- A new departmental organisation since 2000, with the previous institutes being combined two departments;
- A new Veterinary Teaching Hospital (VTH) has been built and integrated into the Faculty, along with major renovation of the pre-existing clinics;
- The teaching and experimental agro zoo-technical farm has been re-organised;
- Equipment has been upgraded and/or bought to improve both teaching and research activities;
- A new curriculum was introduced in the 2000/01, in particular reinforcing practical and clinical training;
- The number of enrolled students has been significantly reduced since 2004, improving the ratios between teaching staff, facilities, laboratories and animal material;
- The number of teaching staff has been reinforced by engaging young researchers and by appointing external teachers and professionals who are experts in specific fields;
- Regular tutorial activities have been introduced for the new students, as well as undergraduates who have fallen behind with their studies;
- The Erasmus/Socrates exchange scheme has been enhanced and extended to 10 countries.

Evaluation visits involve a great deal of work for all concerned - academic staff, support staff, and students. The team of experts is most grateful for the open and friendly way in which it was received throughout the visit. The experts are particularly grateful to Prof. Cristiano Boiti, the Liaison Officer, and Connie Vindigni for the substantial help that they gave before and during the evaluation visit.

1. OBJECTIVES & STRATEGY

1.1 Findings

The primary aim of the FVMP is to provide the degree in veterinary medicine. The Faculty notes that this absorbs much of the available human and financial resources. As secondary objectives, the Faculty of Veterinary Medicine has recently been asked to contribute to two 3-year degree courses ('Biotechnology' and 'Hygiene and Quality of Animal Production') given in cooperation with other faculties of the University of Perugia.

Research is a further objective of the Faculty, aimed at developing both basic and applied knowledge in the field of veterinary sciences and providing an appropriate research environment for teaching staff, research fellows, Ph.D. students and undergraduates.

Another stated objective of the Faculty is to provide post-graduate education through specialisation courses, Masters degrees, and continuing professional education.

The main feature of the degree in Veterinary Medicine is to enable students to acquire:

- understanding of basic biological principles in relation to normal body functions and diseases;
- the ability to distinguish pathological from normal conditions;
- the knowledge to prevent diseases and to manage the processes of animal production to ensure animal and human health as well as animal welfare;
- expertise in diagnosing and treating diseases as well as in alleviating suffering;
- professional skills enabling them to work and communicate effectively with their peers and the public.

Specific objectives related to the degrees offered by the Faculty, to postgraduate degrees and to research were detailed in the SER, along with the methods used for assessing the achievements of Faculty aims. The Faculty mentions the Committee for the Development Plan of the Faculty and the Lecturer-Student Joint Committee in the context of monitoring objectives.

The Faculty considers that the main objectives of the Faculty are normally achieved, except those concerning practical activities, due to limitations imposed by regulations. Two other points continue to prevent full achievement of EAEVE expectations for increasing practical activity:

- The still relatively high number of students which requires several repeats of practical sessions;
- Financial constraints on Italian universities, which limits staff recruitment and building additional facilities.

The Faculty remarks that completion of several facilities of importance for improving practical teaching is ongoing.

Among its principal strengths, the Faculty includes;

- The historic and consolidated location and prestige of the Faculty;
- Highly skilled and motivated teaching staff with good national and international contacts;
- Its facilities, in particular the new Veterinary Teaching Hospital and its services, the University agrozoo-technical farm, Sport Horse Research Centre and equine breeding station;
- Teaching resources, including the library and study facilities, a LAN, and networked audio-visual camera and recorder systems;
- Research resources, such as approved laboratories, biotechnology facilities;
- Good relationships with veterinary practitioners, the Zooprophyllactic Institute of Umbria and Marche (which is on the same site), state veterinary services, etc.

As principal weaknesses the FVM mentions:

- The rather crowded hillside location of the Faculty, which limits the scope for expansion, and presents challenges for access and parking;
- A relatively high student intake, and thus a proportionate shortage of academic and support staff;
- A long, if gradually decreasing, average time to graduate;
- Problems adjusting to frequent changes to the national curriculum.

1.2 Comments

The objectives cover education and research adequately, and clearly present undergraduate education as the primary and most important focus of the Faculty. However, the Faculty should have an objective in relation to service provision (e.g. clinical and diagnostic work of a high level) as it should aim to be a regional leader and focal point in this respect. Greater provision of continuing professional education could also be promoted as a Faculty objective, since the FVMP has good potential in this field, which is currently dominated by private companies.

The Faculty would benefit from having a clear 'mission statement', clearly setting out its main roles and activities as a body. The activities of the departments, sections and other 'centres' within the Faculty should reflect and support the mission statement. In particular, such a mission statement should serve as a guide for activity throughout the Faculty, and to focus units and individuals on adapting their role to the overall aims of the FVM.

The strengths picked out by the team generally reflect those mentioned by the Faculty, although we would add:

- The good relationships between students and staff;
- Scientific research and publication that is at a good level;
- The access the FVMP has to a local multi-species slaughterhouse.

As additional weaknesses, the team considers that the Faculty should have mentioned:

- Traditional approaches in some disciplines, often coupled with a need to increase and structure practical work;
- Problems associated with a national curriculum that has been excessively compressed into just over four years of core teaching.

The strengths and weakness of the establishment are discussed in more depth in subsequent chapters of this report.

The remarks made in subsequent chapters of this report will have a strong bearing on the extent to which the Faculty achieves the objectives of a veterinary training establishment.

1.3 Suggestions

- 1.1 The Faculty should elaborate a mission statement that should provide a 'route map' for the Faculty as a whole and its component departments and sections.
- 1.2 The roles and objectives of the Faculty should include aiming to be a regional focus and centre of excellence for veterinary services, such as clinical and diagnostic work.

The Faculty's aims and roles in continuing professional education are discussed in Chapter 11.

2. ORGANISATION

2.1 Findings

The Faculty of Veterinary Medicine is one of the eleven faculties of the University of Perugia, which comes under the responsibility of the Ministry of Education, University and Research (MIUR). The University is officially represented by the Rector, who is ultimately responsible for the supervision of teaching, research and service work.

Two bodies control University activities: the Academic Senate and the Board of Administration (BoA), composed of representatives of the different components of the 11 faculties, with the BoA also containing representatives of the municipality and region. The Board in particular manages financial matters and accounting.

The FVMP is headed by an Dean, elected for a 4-year term, who appoints a Vice-Dean. They are assisted by the Faculty Consulting Committee, which includes the Dean, the Vice-Dean, the presidents of each degree course running within the Faculty, the directors of each postgraduate specialisation school, plus two elected representatives of full professors, associated professors and researchers, and one student representative. The Consulting Committee develops preliminary documents for discussion within the Faculty, and aids the Dean in the implementation of Faculty policy.

The main governing body of the FVMP is the Faculty Council, composed of the Dean (chairman), all full and associate professors, plus elected representatives of both researchers and students corresponding to and 15%, respectively, of the number of professors. The main functions of the Faculty council are:

- planning of human resources;
- planning of courses and teaching activities;
- resolution on the proposals of the other commissions of the Faculty and degree courses.

There are also Course Councils for each of the three degree courses running within the Faculty (including 'Hygiene and quality of animal production' and 'Biotechnology' degrees, the latter managed jointly with the Faculties of Agriculture, Medicine, Pharmacy, and Sciences). Each Degree Course Council is composed of the President of the Course (chairman), all the academic staff with formal teaching responsibilities in the course, and elected representatives of students (18% of the number of professors).

There are a number of consultative committees and councils, among them:

- Joint Committee for Didactics, which includes the Dean, acting as the chairman, the President of the Degree Course Council plus 13 members: six lecturers and seven students. The committee assesses the efficiency and the effectiveness of teaching services as well as the whole teaching organisation
- Committee for the Utilization of Student Fees
- Committee for Tutoring and Orientation
- Committee for International exchange
- Committee for Research development
- Committee for Faculty development
- Committee of Guarantors for the Veterinary Teaching Hospital
- E-Learning Committee
- ECTS Council
- Library Council

Responding to changes in university legislation the Faculty was reorganised into two large departments: the Department of Biopathological Science and Hygiene of Food and Animal Production (Anatomy, Physiology, Parasitology, Pathology and Hygiene, Food Inspection), and the Department of Veterinary Pathology, Diagnostics and Clinics (Surgery, Internal Medicine, Obstetrics and Gynaecology, Experimental Science and Applied Biotechnology). The departments have full administrative autonomy, paying suppliers, and signing conventions and contracts.

2.2 Comments

The organisation of the Faculty governing bodies seems to be adequate for the decision-making process. Students, researchers, professors and associate professors seem to be well represented in the governing bodies of the Faculty. It was noted that there is no representation of the veterinary profession from outside the FVMP in the decision-making bodies, whereas input and advice from outside can often be helpful to a faculty. In the same way, support staff are only represented in the Department Council.

Though the executive bodies are few and efficient, the number of consultative committees and councils is quite high, with a risk of time consumption, lack of coordination in closely-related topics and of dilution of responsibilities.

The departmental structure is in principle now compact and adapted. However, the heads of the department do not seem to have a real power or a major role in the decision-making process. Also, as in many faculties, there is not systematic cooperation and collaboration between the staff of the former institutes, which often still work as rather separate entities. Some academic staff do not seem aware of what their colleagues in the same or closely-related discipline are actually teaching, leading to gaps and overlaps in the teaching. Therefore improvement in pedagogic cooperation and Faculty-level direction of the courses is needed, so that there is clarity as to how the content and orientation of different parts of teaching relate to other subjects and the course and FVMP aims as a whole (see also Section 4.1).

Within the Department of Veterinary Pathology, Diagnostics and Clinics, and in the Veterinary Teaching Hospital, the “species-oriented” structure is by no means fully implemented. This has important consequences for clinical services, teaching and the use of resources (see Sections 4.4 and 6.2). Completing the adaptation to species-based clinics in modern premises should be a Faculty priority.

The staff and ‘centres’ of the FVM should be thinking and working more as a ‘whole’ Faculty. The move to a structure of two departments needs to be followed with genuine integration. This means clear coordination and integration of the teaching, research, and service activities of the different ‘sections’.

2.3 Suggestions

- 2.1 The Faculty and its component sections should continue to make systematic and determined efforts to genuinely and fully integrate the departments and their activities under the new structure (see also Suggestion 6.6 in relation to integrating clinical activities).
- 2.2 The Heads of Department should have a significant role in the management and decision-making process at Faculty level.
- 2.3 There should be a Faculty body with the authority to shape and direct the teaching of the veterinary curriculum and its component disciplines, and the interaction between different disciplines to ensure the course has a clear structure, applied orientation and comprehensive coverage.
- 2.4 The Faculty should look at reducing the number of committees and councils to make its functioning more efficient.
- 2.5 Representatives of the veterinary profession should be included within the governing or advisory bodies of the Faculty, to provide an external view

3. FINANCES

3.1 Findings

The income and expenditure of the FVMP are summarised in Tables 3.1 and 3.2.

Table 3.1: Income of the FVMP (2005)

Source	€	%
Salaries (government funded)	6,284,989	81.36
Operational funding from State or public authorities	600,207	7.77
Revenue from private bodies	58,139	0.75
Revenue from research	58,462	0.76
Revenue earned and retained by the FVM		
- registration fees from students	40,967	0.53
- from continuing education	10,000	0.13
- from clinical activities	540,917	7.00
- from diagnostic activities	24,000	0.31
revenue from other sources	106,845	1.38
Total	7,724,526	100

Salaries are paid directly by MIUR, passing through the University budget. The University receives from the state an overall budget of around 147 M€ for all its running expenses, consisting of a fixed allocation of 142 M€ based mainly on the number of students, and a premium flexible allocation of 5 M€ based on teaching and research quality. The University of Perugia as a whole is above average among Italian universities in this flexible allocation.

The Senate of the University establishes the general criteria for the allocation of funding. After the costs for salaries, building maintenance, central services, etc. are covered, the money that remains is distributed between the faculties of the University for teaching and research costs, taking into account (by a coefficient correction of up to 30%) the extent to which some subjects are experimentally based. Veterinary and medical studies have the highest coefficient. This distribution follows an analytical model, using as parameters:

- the number of students on the regular course;
- the number of teaching staff;
- the number of degree courses run by a faculty;
- other factors related to research.

Students pay annual University registration fees of 416 - 1120 € according to family income. Fees for *fuori corso* students (those outside the normal timescale of the course) are 25 - 150% higher. The level of the registration fees is decided annually by the Senate. A part of the registration fees are allocated to the Faculty according to several parameters, including number of students, number of subjects taught, number of teachers, and specific parameters based upon the use of laboratories, hospital and clinics.

Table 3.2: Expenditure of the FVMP (2005)

Item	€	%
Salaries		
- teaching staff	4,570,924	58.50
- support staff	1,214,252	15.54
- research staff	499,813	6.40
Operating expenditure		
- specific to teaching	54,503	0.70
- specific to research	424,315	5.43
- general operations	694,931	8.89
- utilities	113,011	1.45
Equipment		
- research	157,424	2.01
- teaching & general	64,520	0.81
maintenance	20,221	0.26
Total	7,812,914	100

The distribution of funding within the FVMP is decided by the Faculty Council on the basis of suggestions from competent committees and according to specific requests, with a certain amount is set

aside by the Dean's office for the common expenditure of the Faculty.

Priorities for capital expenditure (e.g. building work, major items of equipment) are generally decided by the Department Councils. However, for extraordinary expenditure (such as the recent Veterinary Hospital) the proposal is made by the Faculty council, for approval by the University Senate and Board of Administration.

8% of the revenue from clinical and diagnostic work is retained by the University, with the remaining 92% being divided equally between the department and the clinical and bio-pathological department personnel. Due to administrative complications, the revenue generated within the departments or the Veterinary Teaching Hospital cannot be used to hire extra personnel. Research projects do not pay an overhead cost to the University or the Faculty.

The Faculty remarks that the public funds allocated for teaching purposes are not sufficient, and that staff often have to use income from other sources, such as research grants, to subsidise teaching activities.

3.2 Comments

It needs to be noted that throughout Europe, veterinary training is inevitably more expensive than nearly all other disciplines. Veterinary studies need to be predominantly practical and require intensive clinical training in small groups. Teaching farms, veterinary teaching hospitals, mobile clinics and emergency services have to be sufficiently staffed. In addition to this, practically-based training is costly in terms of equipment, materials and consumable supplies.

This high cost of providing veterinary training has hardly been recognised by the government and the University, with a weighting factor of only 30%. This causes particular problems in the funding of the practical work required for sound training, which the Faculty and its staff are having to pay for from other resources. In view of this situation, the team was concerned to hear that financial cuts are envisaged as part of a planned general reduction of public funding for education.

Since the 1998 evaluation visit the Veterinary Teaching Hospital and two inter-disciplinary laboratories have been built, and there have been improvements in the teaching blocks. The University is commended for making this necessary investment. However, some laboratories of the pre- and paraclinical disciplines are insufficiently equipped with basic equipment for practical work, and the budget for such items needs to be increased to reduce this shortcoming.

Although salary costs already comprise the major item in the budget (over 80%), it was noted that more staff are needed in several areas, and that existing staff merit support in terms of aid for specialisation training and access to positions (see Chapter 10).

A greater level of flexibility on how it uses clinical income would be of considerable benefit, as clinical income could be reinvested in equipment and extra staff to continue development of the hospital (see also Section 6.2). This should be a priority for the 46% of revenue currently allocated to staff. Such payments should be targeted at supporting extra clinical and diagnostic activity (e.g. supplementary staff, out of hours work, specialised skill) not treated as a general bonus.

3.3 Suggestions

- 3.1 The University system of financial allocation should take full and proper account of the actual cost of training, in particular to adequately fund a well-structured programme of practical and clinical work.
- 3.2 The Faculty and University need to ensure that there is budgetary provision to provide for the purchase of more laboratory equipment for practicals.
- 3.3 The Faculty should have more flexibility regarding the use of revenue from clinical and diagnostics work, which should be reinvested in equipment, additional staff and payments for out of hours duties and higher skills.

The need for financial support for specialisation and European Diplomate training is mentioned in Suggestion 6.11.

4. CURRICULUM

4.1 GENERAL ASPECTS

4.1.1 Findings

The degree in Veterinary Medicine lasts 5 years (10 semesters), with the average duration of attendance currently being around 7½ years.

Since 2001/02, Italian degrees have adopted a system of subject and course credits (CFU's), broadly compatible with the ECTS system, reflecting the workload needed to achieve the objectives of the programme. Each credit is considered as 25 working hours on average, comprising formal teaching and individual study in equal measure. However, the exact percentage of the two activities depends on the area of study.

The veterinary course comprises 300 CFU in total structured as a 4-year common 'core', plus a graduate dissertation (12 CFU) and subjects chosen from different professional areas (up to 20 CFU) in the 5th year. The practical training necessary to take the State licensing examination, which prior to 2000 was undertaken in the 6 months after graduation, is now also acquired during the 5th year.

The veterinary course is quite closely defined by the Ministry of Education, Research and University studies (MIUR) through a national curriculum. Teaching is based around 10 principal areas of veterinary medicine (Anatomy, Physiology, Pathology, Food Hygiene, Infectious diseases, Parasitology, Pharmacology, Internal Medicine, Surgery, Obstetrics and Gynaecology). Within the confines of the national curriculum, the Veterinary Medicine Course Council organises the course and its content and teaching, including determining how teaching hours should be distributed within a particular field in order to achieve the overall course aims.

Suggestions on curricular issues and course content are proposed by teaching staff, discussed by the Joint Committee for Didactics and then submitted for final approval by the Veterinary Medicine Course and Faculty Councils. Within each discipline, at least 25% of teaching hours must be practical or clinical work. Practical and clinical activities may also be carried out in qualified organisations other than the Faculty. A coordinator for each semester ensures the correct teaching organisation, providing schedules for practical work

The time allocated to theoretical and practical teaching is summarised in Tables 4.1 to 4.3 on the following pages. The subjects actually taught are tabulated in the following sections.

Table 4.1: Teaching hours in 'EEC' subjects

	lectures	practical work	supervised work	clinical work	total
A. BASIC SUBJECTS					
Anatomy (including histology and embryology)	227	59			286
Biochemistry	103	14	5		122
Biology (incl. cell biology)	46		8		54
Biophysics	23	4			27
Biostatistics	16	2			18
Chemistry	42	5	3		50
Epidemiology	21	9			30
Genetics	57	16	5		78
Immunology (see below)					
Microbiology & Immunology	52	15	8		75
Parasitology	47.5	12	8		67.5
Pathological anatomy (macroscopic and microscopic)	167	37	36		240
Pharmacology	51	15	10		76
Pharmacy	4				4
Physiology	171	29	16		216
Physiopathology	42	10	8		60
Scientific and technical information & documentation methods					
Toxicology (inc. environmental pollution)	45	12	7		64

B. Animal production					
Agronomy	42	12			54
Animal behaviour (inc. behaviour disorders)	14	2	2		18
Animal husbandry (inc. livestock production systems)	82	182.5	10		274.5
Animal nutrition and feeding	93	23	19		135
Animal protection and welfare	14	2	2		18
Environmental protection					
Preventive veterinary medicine (inc. health monitoring programmes)					
Reproduction (inc. artificial breeding methods)	45			19	64
Rural economics	25	11			36
C. Clinical subjects					
Anaesthesiology	22			10	32
Clinical examination and diagnosis and laboratory diagnostic methods	124			52	176
Clinical medicine	34			92	126
Diagnostic imaging	68			28	96
Obstetrics	34			66.5	100.5
Reproductive disorders	23			9	32
State vet. medicine, zoonoses, public health and forensic medicine	173.5	57	14	55.5	304.5
Surgery	136			134	270
Therapeutics	34			14	48
D. Food hygiene					
Certification of food production units	31	10	4		45
Food certification	31	14			45
Food hygiene and food quality (inc. legislation)	32	10	3		45
Food inspection, particularly food of animal origin	64	180.5	3		247.5
Food science and technology	15	3			18
E. Professional knowledge					
Practice management	31			5	36
Professional ethics	34			14	48
Veterinary certification and report writing					
Veterinary legislation					

In addition to the teaching in veterinary disciplines, 3rd year undergraduates have 30 hours of scientific English.

Table 4.2: Distribution of practical and theoretical teaching in core 'EEC' subjects

	hours in course						percentage of total course hours	ratio of lectures to other types of work
	lectures	practical work	supervised work	clinical work	other	total		
Basic subjects	1114.5	239	114			1467.5	39.0	1:0.32
Animal production	315	232.5	33	19		599.5	15.9	1:0.90
Clinical subjects	648.5	57	14	461		1180.5	31.4	1:0.82
Food hygiene and technology	173	217.5	10			400.5	10.7	1:1.32
Professional knowledge	65			19		84	2.2	1:0.29
Other subjects			30			30	0.8	1:-
Total	2316	746	201	499		3762	100	1:0.62

The ratio of theoretical training to practical and clinical training is about 1:0.62 (2316:1446).

The ratio of core intramural clinical training to theoretical and practical training is about 1:6.54 (499:3263).

The 5th year of the course is comprised of:

- Elective subjects from professional areas of study (at least 320 hours);
- Preparation of a graduate thesis (*tesina*) worth 12 CFU;
- Practical training required for admission to the state examination (\pm 6 months), worth 30 CFU.

The practical training and thesis preparation periods were not included within the previous national curriculum for the veterinary degree course, but were postgraduate requirements.

Students have a free choice of which subjects they take from and professional area of study (CIP's – see Table 4.3), with a particular topic being activated if required.

Table 4.3: 5th year professional elective subjects (CIP's)

Elective group and subjects	practical work	clinical work
Surgery		
<i>Small animal surgery</i>		32
<i>Large animal surgery</i>		32
<i>Diagnostic imaging</i>		32
Diagnostic control of hemoprotozoal diseases		16
Endoscopy in internal medicine		16
Ultrasonography in internal medicine		16
Cardiovascular emergency		16
Emergency in internal Medicine and Intensive care		
<i>Poisoning therapy</i>		32
<i>Intensive therapy of endocrine diseases</i>		32
<i>Intensive therapy of lympho-myelo-proliferative diseases</i>		32
Canine reproduction I		48
Canine reproduction II		32
Veterinary Oncology		
<i>Tumours of alimentary and respiratory systems</i>	32	
<i>Tumours of nervous system, muscles and bones</i>	32	
<i>Tumours of skin and uro-genital system</i>	32	
Microbiology of meat and meat products		
<i>Food borne diseases</i>	32	
<i>Isolation and identification of micro-organisms</i>	32	
<i>Molecular identification of micro-organisms</i>	32	
Chemical Contamination of food		
<i>Chemical residues</i>	32	
<i>Toxicology of residues</i>	48	
Food quality system		
<i>Auditing for food quality</i>	32	
<i>Analytical method for food quality</i>	48	

The 6 months of practical training necessary for admission to the state licensing examination is worth 30 CFU. 12 of these credits must be performed intra-murally (in Faculty laboratories, clinics University farms, slaughterhouse, etc.). The other 18, with the exception of the clinical activity (which must be performed at the VTH) may be carried out in authorised external organisations such as farms, breeding centres, practitioners, state veterinary services, factories/processing plants, slaughterhouses, external laboratories, experimental zooprophyllactic institutes, army veterinary centres, dog pounds, etc.

20 CFU (about 6%) of the total course credits is comprised of free-choice electives. Of these, one CFU refers to the "green week" at the AZDS (see also Section 4.3) and the another to the "red week" at the VTH, both of which are in effect compulsory.

Table 4.4: Summary of total hours in each year of the present course

year	course hours						ratio of lectures to other types of work
	lectures	practical work	supervised work	clinical work	other work ¹	total	
First	557	101	22			680	1: 0.22
Second	620	159	88			867	1: 0.4
Third	636	111	55	94		896	1: 0.41
Fourth	567	60	6	158		791	1: 0.4
Fifth		96		96	870	962	1: -
Total	2380	816	171	829		4196	1: 0.76

¹ Electives (CIP) and practical training for the state examination

The Faculty remarks that it is desirable to increase the proportion of clinic and practical work within courses.

4.1.1 Comments

Although the general balance between subject areas seemed satisfactory, the team was concerned about the overall structure of the new curriculum, in particular the way the course has been compressed. The preparation of a diploma thesis and the 6-month practical training - both of which used to be after graduation - now occupy much of the final year of the degree. In effect, the Faculty is left with a reduced time for core coursework. This is too short to adequately cover the required veterinary content, particularly since the students starting the course do not have a notably strong scientific training (see Chapter 9). This remark should not be regarded as a criticism of the FVMP; it is the structure of the new national curriculum that presents a serious weakness.

The state examination itself seems to have a very low failure rate, and does not represent a particularly rigorous assessment that ensures a significant measure of quality control.

The team was pleased to note that the amount of practical work has increased since 1998. However, the proportion of practical work in general remains very low, especially in the early years. For the core course as whole, the ratio of theory:work of a practical or tutorial nature is right on the limit of being unacceptable, although the fact that the 420 hours of electives are practical mitigates this a little. Furthermore, some sessions classified as 'practical' work were demonstrations or videos. Practical work should be obligatory hands-on - and 'brains-on' - learning, with a clear objective and direction. This means structured experiments or procedures done by each student, with verification and feedback. The team was pleased to hear that the Faculty is planning more and larger shared teaching laboratories as a measure to facilitate a greater level of structured practical work. More equipment for practical teaching also seems needed.

The rotations ('internal training') are a good new feature of the course, as they provide the opportunity for the hands-on training that is so important for future practice. It would be sensible to extend this system of rotations in terms of the number of weeks spent in the applied areas, and the number of 'stations' (e.g. to include pathological anatomy, slaughterhouse work, farm animal health, etc.). Ideally, the 5th year of studies should be lecture-free and comprise a core set of structured intramural training, complemented by a choice of elective rotations to provide a level of differentiation.

The course remains a heavy didactic load for students, in particular since it is predominantly comprised of lectures. The content of each subject should be systematically reduced, to counter the common tendency to add extra new material in to teaching, but not remove anything. The aim should be to significantly reduce the number of lectures and put more emphasis on self-directed learning. With the current formal workload, it is not easy to see how undergraduates find the time for the self-directed component expected under the CFU system. The compression of the course has probably added to the teaching load on students.

As noted in Chapter 2, the full and functional integration of the old institutes and their activities remains to be completed. A more cohesive teaching structure is one substantial issue to address, since there was often a strong need for integration or coordination between the different subjects. Not all of the required topics are adequately covered, for instance environmental protection and herd health management. The modern concept of preventive veterinary medicine seems to be missed in the whole curriculum (see Section 4.3). Such overlaps and gaps in the teaching need to be removed through 'top-down' curricular coordination. Furthermore, curricular and teaching coordination should aim to interlink subjects. For example in all fields,

- pre- and paraclinical subjects should have a clear link to clinical topics
- animal health, productivity and the quality and safety of food should be linked in the 'farm to fork' approach. This is a very clear veterinary responsibility.

The team would note that some of the teaching in the applied areas is of a notable standard. In particular we were pleased at the level in anaesthesiology, food safety, and equine work.

Although useful, the hours allocated to the elective professional subjects do not provide a clear differentiation in a particular direction, and under the current circumstances would be better spent reinforcing the 'core' training.

The pre-professional practice seems to have similar characteristics to work classified in other European faculties as extra-mural work. In contrast, even with rather short semesters, there was no requirement for students to undertake extra-mural work outside term time. A structured and obligatory system of extra-mural work during the time students are taking the veterinary degree would be an effective supplement to the heavy theoretical load of coursework.

4.1.3 Suggestions

- 4.1 Veterinary training has to comprise at least 5 academic years of structured full-time instruction within a veterinary faculty or equivalent academic establishment.
- 4.2 The amount of work of a practical nature has to be increased, and given a clear structure aligned to the needs of subsequent disciplines and/or mainstream professional veterinary activity.
- 4.3 The teaching load should be reduced through a significant decrease in the number of lectures and rigorous review of the subject content, putting the emphasis on self-directed learning.
- 4.4 Environmental protection, herd health and preventive veterinary medicine should be included in the curriculum either as specific subjects or as part of existing disciplines with appropriate coverage.
- 4.5 The Faculty should provide overall guidance and direction to the veterinary course and explicitly encourage interdisciplinary teaching and promote active horizontal and vertical interlinking of content (see also Suggestion 2.3).
- 4.6 The final year of studies should be organised as a comprehensive system of full-time intramural rotations in the applied areas (clinical, animal health, food safety, pathology, etc.).
- 4.7 A structured and obligatory system of extramural vacation work should be considered to supplement the core training.

4.2 BASIC SUBJECTS AND BASIC SCIENCES

4.2.1 Findings

Most of the basic sciences are taught by members of the Department of Biopathological Science and Hygiene of Food and Animal Production. The second department is involved in teaching pharmacology and toxicology.

The curriculum hours in the basic subjects taught to veterinary students are shown in Table 4.5.

Table 4.5: Number of teaching hours in 'core' basic subjects

subject	sem-ester	hours in course					ratio of lectures to other types of work
		lectures	practical work	supervised work	clinical work	total	
Physics applied to biology & medicine	1	23	4			27	1: 0.17
Statistics & information technology	1	16	2			18	1: 0.13
Propaedeutic biochemistry	1	42	5	3		50	1: 0.19
Chemical & biochemical methods	1	15		3		18	1: 0.2
General biochemistry	1	26	2	2		30	1: 0.15
Mendelian genetics	1	15	3			18	1: 0.2
Botany	1	23	4			27	1: 0.17
Zoology and biology	1	46		8		54	1: 0.17
Veterinary histology & embryology	1	55	10			65	1: 0.18
Anatomy of species of veterinary interest	1,2	128	41			169	1: 0.32
Systematic & comparative vet. biochem.	2	15	3			18	1: 0.2
Nutritional biochemistry	2	15	3			18	1: 0.2
Molecular biology	2	17	3			20	1: 0.18
Clinical biochemistry	2	15	3			18	1: 0.2
Veterinary topographic anatomy	2	44	8			52	1: 0.18
Veterinary physiology	2,3	124	24	8		156	1: 0.26
Endocrinology	3	40	4	8		52	1: 0.3
Veterinary microbiology & immunology	3	52	15	8		75	1: 0.44
Parasitology	3	47.5	12			59.5	1: 0.25
Epidemiology	7	21	9			30	1: 0.43
Psychobiology & psychobiological phys.	4	14	2	2		18	1: 0.29
Domestic animal physiopathology	4	42	10	8		60	1: 0.43
General pathology	4	42	3	15		60	1: 0.43
Parasitic diseases	4	47.5	16	4		67.5	1: 0.42
Pharmacokinetics, vet chemotherapy	4	33	9	6		48	1: 0.45
Pharmacology	5	22	6	4		32	1: 0.45
Toxicology	5	45	12	7		64	1: 0.42
Necropsy	5	21	4	5		30	1: 0.43
Tropical pathology	5	21	5	4		30	1: 0.43
Infectious diseases	5, 6	63	21	2		86	1: 0.37
Pathological anatomy	5, 6	104	30	16		150	1: 0.44
Total		1160	282	113		1524	1: 0.35

In addition to the core course, undergraduates can elect to take up to 192 hours of practical work related to basic sciences within the CIP's (professional integrated courses) during the 5th year (see Table 4.3).

4.2.2 Comments

As remarked in Chapter 9, the selection procedure does not result in a student intake who have a good foundation in the basic science subjects. The Faculty often has to provide additional support, which adds to the teaching load of both staff and students.

The syllabi and teaching in the basic sciences seems often to be very traditional, being based heavily on *ex cathedra* lectures with a relatively small practical component. There is also often considerable potential for improving the linkage between the pre- and paraclinical sciences and the applied areas. This

is important as a means of both highlighting and clarifying to students the relevance of the basic sciences to veterinary issue, and in clearly identifying which issues and aspects of the basic sciences should be emphasised in the teaching programme.

The team was particularly concerned to find that anatomy, a foundation discipline, was in need of considerable attention. There seemed to be little or no dissection work done by students, the topographical approach that provides a basis for surgery was missing, and there was a lack of live or functional anatomy.

4.2.3 Suggestions

The need to reduce the didactic content of the teaching and increase and structure the practical component has been mentioned in Suggestions 4.2 and 4.3.

- 4.8 The teaching of anatomy needs to be modernised and given a clearly applied approach, with a much greater component of practical work, in particular dissection.

The need for much greater interlinking of the disciplines, which includes incorporating far more applied content into the basic sciences, is outlined in Suggestion 4.5.

4.3 ANIMAL PRODUCTION

4.3.1 Findings

The topics taught in animal production subjects are shown in Table 4.6. The attribution of these hours according to the 'EEC' subjects is shown in Table 4.1.

Table 4.6: Number of teaching hours in 'core' animal production subjects

subject	sem-ester	hours in course				ratio of lectures to other types of work
		lectures	practical work	supervised work	total	
Economy of livestock farms	3	25	11		36	1: 0.44
Livestock buildings	3	19	4	4	27	1: 0.42
Breed conformation and performance evaluation	3	42	12	6	60	1: 0.43
Ethology & animal welfare	4	21	3	2	26	1: 0.24
Veterinary genetics	4	21	6	3	30	1: 0.43
Genetic evaluation of animals	4	21	7	2	30	1: 0.43
Biotechnology applied to animal prod.	4	21	9		30	1: 0.43
Forage crop management	4	19	8		27	1: 0.42
Animal nutrition	4	21	6	3	30	1: 0.43
Feed characteristics	4	30	8	7	45	1: 0.5
Animal nutrition & feeding	5	21	5	4	30	1: 0.43
Feed technology	5	21	5	4	30	1: 0.43
Management of veterinary sanitary structures	8	31		5	36	1: 0.16
Internal training: animal breeding & husbandry	9/10		48		48	1: -
Total		313	132	40	485	1: 0.56

In addition to the core course, undergraduates can elect to take professionalising subjects (CIP) that have some relevance to production issues (see Table 4.3), although none is primarily focussed on this area.

Undergraduates also have to undertake 112.5 hours of external work in animal breeding and husbandry as part of their pre-professional training (see Section 4.1).

The Faculty is one of the main users of a University Farm housing a range of species (see Section 6.1).

4.3.2 Comments

The animal production teaching is divided up into quite classical disciplines, an approach which omits or understates some topics. Environmental protection seems to be only partly covered by the curriculum (e.g. within food hygiene) and elements of agronomy similarly feature only as part of the topic 'feed technology'. Preventive veterinary medicine is not explicitly mentioned anywhere in the curriculum and/or the syllabi, no is there evidence of cooperation between different units to teaching such a concept (i.e. there is no apparent cooperation or integration between animal nutrition, husbandry, hygiene, reproduction and clinics to provide a holistic view of production animal health management).

The practical training is currently in need of expansion, to give the teaching of animal production a more hands-on approach to covering the professional veterinary role in this area. In terms of the general balance of specific subjects, and in the area as a whole, this means significantly increasing the amount of practical and tutorial work. Lectures are currently far too dominant for a subject that should have a strongly applied orientation.

A closer integration of the animal production disciplines is also needed. This teaching should be based around systematic programmes of multi-disciplinary visits and analysis of working farms in the region, wherein the teaching of a herd-health approach should be a priority. It should in fact be the explicit aim of a the foundation subjects concerned with animal production – e.g. the teaching covering agronomy, nutrition, housing, epidemiology, hygiene, economics, etc. – to efficiently provide the basis necessary for the understanding and application of this approach.

The teaching farm is an asset, and should be developed and used to the maximum extent. To achieve this, the primary role of the Farm should explicitly be as a teaching facility.

The 'Green Week' that introduces students to farm animal work is a good innovation, and the team was pleased to learn that the 'Green Week' has recently been made a compulsory part of the course. Having obligatory extramural work on practical animal management during the vacation in the 1st year is also worth considering.

4.3.3 Suggestions

- 4.9 The amount of practical and tutorial work in the animal production disciplines should be substantially increased, and the number of lectures significantly reduced.
- 4.10 The teaching in the field of animal production should be oriented towards the applied aspects of professional veterinary activity and be clearly linked to the training on farm animal health and the safety and quality of food of animal origin, in the 'farm to fork' approach.
- 4.11 The animal production has to include and be oriented towards preventive veterinary medicine, in the sense of a holistic and proactive approach to the management of the health and productivity of animal herds.
- 4.12 The Faculty should consider supplementing the exposure to practical animal handling and management on a farm, through extramural vacation work on farms early in the course (note also Suggestion 4.6).

4.4 CLINICAL SCIENCES

4.4.1 Findings

The majority of the teaching in clinical sciences is provided by the Department of Veterinary Pathology, Diagnostics and Clinics, comprising sections of Surgery, Internal medicine, and Obstetrics & Gynaecology. Teaching takes place in the Veterinary Teaching Hospital (VTH), plus a Mobile Clinic, Sport Horse Research Centre, Experimental Agro-Zootechnical farm and three other university farms. The clinical facilities and organisation are outlined in Section 6.2. The animal material sent to the University and seen by the mobile clinic is detailed in Chapter 7.

The obligatory courses and teaching hours in clinical subjects are shown in Table 4.7. The attribution of these hours according to the required 'EEC' subjects is shown in Table 4.1.

Table 4.7: Number of teaching hours in 'core' intramural clinical subjects

subject	sem-ester	hours in course					ratio of lectures to other types of work
		lectures	practical work	supervised work	clinical work	total	
Surgical semiology	5	34			14	48	1:0.41
Surgery	5,7	68			28	96	1:0.41
Radiology	5	34			14	48	1:0.41
Medical semiology	6	34			14	48	1:0.41
Internal medicine pathology	6	45			19	64	1:0.42
Diagnostic methods	6	45			19	64	1:0.42
Avian pathology & veterinary public health	7	42	15	3		60	1:0.43
Anaesthesiology	7	22			10	32	1:0.45
Obstetrics	7	34			14	48	1:0.41
Andrology	7	23			9	32	1:0.39
Internal medicine	8	34			14	48	1:0.41
Therapeutics	8	34			14	48	1:0.41
Legal Medicine	8	34			14	48	1:0.41
Diagnostic imaging	8	34			14	48	1:0.41
Operative surgery	8	34			14	48	1:0.41
Reproduction & AI	8	45			19	64	1:0.42
Vet clinical obstetrics & gynaecology	8	34			14	48	1:0.41
Internal training: Avian pathology & VPH	9/10			16		16	1:-
Internal training: internal medicine	9/10				32	32	1:-
Internal training: surgery	9/10				32	32	1:-
Internal training: obstetrics & gynaecology	9/10				32	32	1:-
Clinic training in VTH					25	25	1:-
Total		664	15	19	363	1061	1:0.6

Each course credit (\pm 25 hours) in the clinical areas is comprised of 64% teaching activity (lectures and 15 – 30% practical training) and 36% individual study.

In addition to the core course, undergraduates can elect to spend all or part of their 320 hours of practical professionalising courses in the 5th year on clinical disciplines, which make up about half the course hours offered (see Table 4.3). Students may also elect to spend additional time in the clinics but receive no credit for this activity.

As part of their pre-professional training undergraduates have in addition 187.5 hours of “external training” in internal medicine and clinics, surgery, obstetrics and gynaecology, which are taken inside the Faculty.

At present, no obligatory extramural work is included in the curriculum. However, student can chose to spend part of practical training for the State examination during their 5th year (see Section 4.1) in private or public institutions that have an agreement with the Faculty.

Intensive ‘hands-on’ clinical training, provided in groups of 4 - 5, has been structured into the core course since 2005/06. Each student participates in is this training during week-long clinical rotations in

the new VTH (with the sections of internal medicine, surgery, and obstetrics and gynaecology), as well as in avian pathology. Students are closely involved with cases presented, although professional control remains with the staff clinician. A list of practical objectives that each student must achieve has been established, and students may be exposed to further techniques through elective studies. Attendance out of hours is voluntary, but expected.

The main part of the undergraduate training is dedicated to acquiring knowledge of different pathologies, symptoms and clinical methods that allow a diagnosis to be made by attendance in the clinics. Special attention is given to adjunctive investigations (e.g. radiology, endoscopy, ultrasound, electrocardiography and laboratory tests). Students also have to acquire knowledge of general and local anaesthesia techniques, reproduction & obstetrics, and the main surgical techniques for treating different diseases of domestic animals.

The ratio of core intramural clinical training to theoretical and practical training is about 1:6.54 (499:3263).

The Faculty has highly motivated, young, clinical teaching staff with numerous national and international contacts, as well as an increasing number of lecturers who have graduated in or are in training towards European Veterinary Specialisation. A number of practitioners also participate in teaching activities under the direction of the Faculty teaching staff, both as paid locums and as volunteers. Seven external specialists in livestock (bovine, pig, horse) have an agreement with the Faculty and are consulted whenever required.

Several agreements with the public veterinary service and private farms assure opportunities for off-site practical work, including:

- Evaluation of fertility of 60 bulls of the national breeders association for beef cattle;
- Evaluation of health of Maremmano horses during performance tests in the Military National Centre;
- Access to the municipal animal pound for veterinary and health work;
- Diagnostic laboratory testing of both external and internal samples.

The animal material coming to the VTH and seen by the mobile clinic is detailed in Chapter 7. The ratio of students graduating:clinical caseload in pets is about 1:47 and for livestock is around 1:14.2.

4.4.2 Comments

The number of hours and proportion of curricular time allocated to the clinical subjects are adequate and in line with veterinary courses elsewhere in Europe.

There is no evidence of any deficiency in the didactic teaching in clinical areas (i.e. lecture courses). As remarked in Section 4.1, the course as a whole has a high didactic content, particularly in terms of an overload of lectures. This is also the case in the clinical disciplines, even though the proportion of work of a practical nature is higher than the average for the course. Strongly applied and vocational subjects, such as those in the clinical field, need to have a greater emphasis on the practical side.

The ratio of core clinical work:other types of work is unsatisfactory compared to the recommended ratio of 1:4, although the fact that many students will also take clinical electives (CIP's – see Table 4.3) will improve their 'individual' ratio. It is disconcerting to note that in the vast majority of clinical subjects, no hours have been classified as 'practical' work.

The quality of the experience of students in the VTH is good, with evidence of high quality veterinary practice demonstrated by the staff, and with good feedback from undergraduate and post graduate sources regarding the level of clinical training.

Training in the small animal area is in general satisfactory. Development of the hospital and caseload will improve student clinical training. For example, full-day participation, case responsibility and verified student 'log-books' could be introduced. As mentioned in Section 4.1, the system of intramural rotations ('internal training') is a good development and should be extended to take up all or most of the final year of training.

More details and comments on the caseload and the organisation of the clinical activities are given in Chapter 7 and Section 6.2, but are also remarked upon here as they have significant impact on the quality of the clinical teaching.

The team was pleased to note the new Veterinary Teaching Hospital, and looks forward to further development to make the best use of these excellent premises. The new VTH seems to have already improved the physical and organisational integration of the internal medicine and surgery services, both directly and through shared services in imaging and anaesthesia, and has been further enhanced by the enthusiasm of the staff. As the Hospital has not been running long, and refurbishment of adjacent older premises is planned, further integration of companion animal medicine and surgery can be expected and welcomed. Some services such as neurology, urology, a centralised drug dispensary, and toxicological analysis laboratory should be implemented in the near future, which should improve both the clinical service and the teaching and research links between the clinical and paraclinical sciences.

Students should be integrated into the working of the clinics in a structured and comprehensive way. This would aid clinicians, and guarantee a minimum level of clinical exposure for every student.

The Section of Obstetrics & Gynaecology, however, remains rather separate, for example performing its own anaesthesia and surgery for reproductive cases. This leads to concerns that modern practices, for instance in anaesthesia and analgesia, are not being systematically applied. More generally, a particular effort and reorganisation seems to be required to raise the clinical involvement and level of activity in obstetrics and gynaecology. Although there is clearly proficiency present in expert areas of reproduction, and a good understanding of the fundamentals of reproductive pathology of male and female domestic animals is given, there is insufficient clinical material and activity in this section. From the teaching perspective, there is too limited an exposure to basic procedures, such as neutering of dogs and cats, let alone participation in parturition and dystocias.

As remarked in Section 6.2, further integration of the clinics as species-based units under the new departmental structure is needed. From both a physical and organisational perspective, small animal obstetrics and gynaecology should be integrated with the other small animal sections.

Ultimately the quality and quantity of the clinical experience of students is limited by the caseload. As regards companion animals, the major strength is in equine cases, with a reasonable exposure to canine matters. However, the numbers of cats and exotic cases is limited.

Access farm animal material for clinical and health teaching is very limited. The mobile clinic is not fully developed and is not regularly attending to farms or production animals or providing students with a good view of farm practice. In terms of single animal work, the clinical teaching on bovines is very inadequate, and currently the University Farm does not provide case material; students are rarely exposed to common problems such as acetonemia, traumatic reticulitis, lameness, displaced abomasums and milk fever. Several agreements with the public veterinary service and private farms assure some opportunities for extramural practical work but the provision of adequate live bovine case material for teaching is a serious weakness.

The situation is similar as regards other production species, where the issue is primarily a question of dramatically improving the coverage of population health management through systematic visits and analysis of working farms (see Section 4.3).

Attempts to increase the caseload are being made through good working relationships with local practitioners. However, the Faculty needs to ensure 'in house' coverage of the full range of disciplines and species. As outlined in Section 6.2, a clear focus and attribution of responsibility for an integrated programme of farm animal health, supported by a proactive mobile clinic, is needed to improve teaching in this farm animal area. As a complementary measure, the Faculty should also consider increased use of phantom models of animals for the teaching of specific tasks such as venepuncture, cardio-respiratory resuscitation and pregnancy diagnosis. The Faculty should also seek to make wider use of material to which it does have access, such as using cattle awaiting slaughter for reproductive procedures and examination.

4.4.3 Suggestions

- 4.13 The training programme covering production animal veterinary activity must be improved to provide students with the basic skills and knowledge of farm animal medicine, surgery and management of health and productivity of all the major species (see also Suggestion 4.9). (*Category 1 suggestion*)

The need to have a focal point for farm animal work, and to improve the caseload in these species, has been mentioned in Suggestions 6.6 and 7.2.

- 4.14 The practical clinical training in obstetrics and gynaecology must be improved. (*Category 1 suggestion*)

The need to reduce the didactic teaching load and reinforce the practical teaching has been outlined in Suggestions 4.2 and 4.3.

- 4.15 The proportion of intramural work in the curriculum, and the level of Faculty oversight of extramural work, should be increased so that each student receives an acceptable and validated level of structured clinical training in all major species and disciplines.

Suggestion 4.7 concerns the implementation of an extended system of clinical rotations.

- 4.16 The clinical training should be developed and structured through giving students greater case responsibility and a clear and documented set of clinical procedures in which they need experience and demonstrable competence (an individual 'log-book'). This implies attendance at the clinics and VTH during the full working day.

- 4.17 The Faculty should introduce phantom models for assisting teaching, in particular regarding species and procedures to which students currently have minimal exposure.

4.5 FOOD HYGIENE AND TECHNOLOGY AND VETERINARY PUBLIC HEALTH

4.5.1 Findings

The food hygiene subjects (see Table 4.8) are taught by the Section of Food Inspection of the Department of Biopathological Science and Hygiene of Food and Animal Production, which has a staff of 2 Full Professors, 1 Associate Professor, and 3 researchers.

Table 4.8: Subjects and of teaching hours in 'core' food hygiene subjects

subject	sem-ester	hours in course				ratio of lectures to practical work
		lectures	practical work	supervised work	total	
Food hygiene	6	31	14		45	1: 0.45
Food technology	6, 7	63	20	7	90	1: 0.43
Food inspection, food certification	7	64	23	6	93	1: 0.45
Chemical analysis of food	7	15	3		18	1: 0.2
Internal training: Food inspection	9/10		48		48	1: -
Total		173	108	13	294	1: 0.44

Students also have to take a 7th semester course and internal training in avian pathology and veterinary public health (see Table 4.7), which contains some topics relevant to the food area.

In addition to the structured course, students can elect to take subjects from three of the blocks of professionalising subjects (see Table 4.3) covering 'microbiology of meat and meat products', 'chemical contamination of food' and 'food quality system'. About ¼ of undergraduates take these disciplines.

As part of their pre-professional training undergraduates have in addition 112.5 hours of food inspection (part of this can be done at the University, or at the nearby Experimental Zooprophyllactic Institute).

Two hours of the practical teaching in food hygiene plus 10 hours of the practical teaching in food inspection are given in 2-hour sessions at the slaughterhouse. Groups of 8- 12 students are accompanied by a professor who is assisted by a veterinarian of the public health service. The municipal slaughterhouse used is 10 – 20 minutes away from the Faculty by car or bus. This slaughters cattle, swine, sheep and goats, and occasionally horses, on different days of the week, using three slaughtering lines. The bovine/equine line has a capacity of about 30 animals/hour, that for swine around 90 animals/hour, and about 80 sheep/goats per hour. The plant has a classroom for about 25 students, as well as a locker and changing room where students put on helmets, overalls and boots. As a service, the staff of the Food Hygiene section carries out the HACCP of the establishment with the assistance of the students.

For laboratory practical work in the Faculty, a student year is divided into 4 groups of around 20 - 25 students. Using the different teaching laboratories in 2-hours sessions, students examine self-prepared meat products, as well as samples from the slaughterhouse and from retail outlets. The laboratory practicals cover food microbiology (including PCR techniques), chemical analysis and quality parameters. There are also practicals at the small food processing plant, where students make meat products, controlling the production steps and the final products.

Every academic year three food industries are visited with students, usually a dairy plant, a meat plant, and a canning plant for fish.

Since 1998, the facilities of the Food Hygiene Section have been improved with a new computer room and library, and a new teaching laboratory on the top floor, that was completely renovated in spring 2005.

4.5.2 Comments

The Food Inspection Section is a well-organised unit with an active staff. The teaching covering food hygiene and technology is generally sound and covers all EEC subjects. The students receive sufficient theoretical and practical teaching in food inspection of animal origin (meat and meat products, milk and dairy products, eggs, fish and honey) although exposure to poultry is limited. The student workload at the

slaughterhouse is enough, allowing hands-on experience with sufficient carcasses and offal to perform all necessary examinations. The team commend the good agreements between the Health Authority, the University, the Municipality of Perugia, and the Association of Butchers that allows the use of the slaughterhouse as a teaching unit for veterinary students.

The laboratory practicals cover most relevant aspects of food quality, food technology and microbial hazards in foods of animal origin. However, laboratory practicals on chemical hazards (drug residues, mycotoxins, pesticides, etc.) for all students are scarce, as there is only a 1-hour session on this topic. Additionally, students taking the corresponding elective course do more practicals on chemical hazards.

There is some teaching collaboration with other disciplines during the CIPs (Pharmacology and Biochemistry), but is not much integration with animal production, pathology veterinary public health. This would be desirable for the involvement of the students in an integrated “farm to fork” approach (see also Section 4.3).

The Veterinary Faculty of Perugia should take a leading role in informing society that veterinarians are not only clinicians, but they also play a key role in the public health system in terms of food safety, food control, preventive medicine measures, animal and human health, public health plans, etc. Students should know the structure and function of the public health services and the different areas in which veterinarians can exercise their profession. The teaching should accordingly cover such aspects of the work of veterinarians in public health, a task in which the assistance of external professionals may be very helpful.

4.5.3 Suggestions

- 4.18 The Faculty should seek to include some practical work in a poultry slaughterhouse in the programme taken by all students.
- 4.19 Practical on chemical hazards in foods (drug residues, mycotoxins, pesticides, etc) should be extended to all students.
- 4.20 The teaching in food hygiene should be coordinated with courses dealing with animal production, veterinary public health, pharmacology, and toxicology in a modern “farm to form” approach (see also Suggestion 4.10).
- 4.21 The mission statement of the Faculty and departments should reflect the role of veterinarians as health professionals, and as far as the teaching in food hygiene is concerned, students should be provided with a real knowledge of the different veterinary activities in the public health system.

5. TEACHING: QUALITY AND EVALUATION

5.1 TEACHING METHODOLOGY

5.1.1 Findings

The content and presentation of teaching and the nature of practical work is primarily decided by the staff teaching a particular discipline, subject to the approval of the Joint Committee for Didactics (see also Section 4.1). Teaching is provided through lectures, practical work and rotations in applied areas. Computer-assisted learning has been implemented in the last few years and presentation of some courses as well as multiple choice tests are available on-line.

The Faculty states that a clear set of teaching and learning objectives are given for each area and course year and placed on the website of the Faculty.

The quality of teaching is evaluated for all teachers according to national law and regulation. The students are asked to fill in a form anonymously at the end of each course. The form includes 8 parts:

- Student's curricular information
- Student's commitment
- Evaluation of teacher's commitment and teaching facilities.
- Difficulty of course
- Evaluation of theoretical classes (score 1-5 = bad to excellent)
- Evaluation of practical activity (score 1-5 = bad to excellent)
- Additional information.
- Comments and suggestions.

Since 2005, the Committee for Didactics of Veterinary Medicine introduced an additional form including 21 more specific questions on veterinary course evaluation. The results of students' evaluation are communicated to the Faculty Dean and then to individual lecturers.

The results also constitute one input to a new university evaluation system established by MIUR in 1999 that is now being progressively applied. One of the most significant consequences of this evaluation process is that a part of the annual budget allocation to the University (about 10%) is multiplied by a rating of 0 to 1 for teaching, research, availability of structures, etc. A university that obtains a reduced budget may decide to impose sanctions on their faculties that received a negative score.

5.1.2 Comments

Teaching is based on a largely traditional format where (as mentioned in Section 4.1) lectures predominate. A commendably applied approach is taken in some areas, in particular anaesthesiology, food safety, and equine work. However, in some of the pre- and para-clinical fields, for instance anatomy and some of the animal production disciplines, the teaching approach and practical component needs review to give it far more applied value for the disciplines that follow in the course and for professional veterinary activity.

Subjects are taught as rather separate entities, which does not lend itself to using a problem-oriented approach. As remarked earlier, systematic integration and coordination of disciplines would be valuable, and could serve as the basis for developing case-based teaching that spans different subjects.

A wider use of international titles as the core reference material would be preferable, as students seem to depend heavily on a narrow range of texts. With subjects taught as separate entities, and examinations being conducted by the same staff who teach the subject, disciplines risk becoming detached from other fields and reality of veterinary activity. Requiring students to find, assimilate and apply appropriate material from different sources, rather than giving them a coursebook to learn, is also a key element of developing self-directed learning ability. To support this, the bibliographic resources that are available need to be reinforced (see Chapter 8), so that the Faculty has a sound and readily available collection of modern textbooks covering veterinary medicine.

The system for evaluation of teaching seems to be a 'top-down' and quite general process that would benefit from more specificity and firmer outcomes and consequences. Some of the more evident shortcomings in particular subjects noted during this evaluation were also highlighted in the previous visit, yet have persisted. Teaching methodology, in the sense of the general orientation and delivery of instruction in different disciplines, as well as the adoption of more modern teaching systems and technology, should have some central Faculty direction so that corrections and changes can be implemented effectively.

5.1.3 Suggestions

Suggestions in Section 4.1, which concern the structure of teaching and curriculum, will have a major effect on the nature of teaching and learning outcomes.

- 5.1 To give teaching evaluation more effectiveness, the Faculty body with authority to direct the curriculum (see Suggestion 4.5) should also be able to direct how in general a subject is presented to ensure at least a basic level of effectiveness and relevant learning value.
- 5.2 The integration of disciplines and course content (see Suggestion 4.5) should be used as a basis for extending problem-oriented and case-based teaching to the pre- and paraclinical disciplines.

The need for more international bibliographic material has been mentioned in Suggestion 8.3.

5.2 EXAMINATIONS

5.2.1 Findings

There is no central examination policy for the Faculty. Each subject is assessed separately by the staff responsible for teaching the course, with at least two lecturers participating in the examining board. There are three principal sessions when examinations may be taken: winter, summer, and autumn during lesson breaks. Intermediate examinations may also be scheduled.

Generally, assessments consists of an oral examination. A practical test and a written examination may be scheduled. This evaluation is expressed in a mark out of thirty. Teaching credits (CFU's) are awarded on passing the exam independently of the mark obtained.

There are no specific prerequisites or time limits for passing examinations. Undergraduates cannot enrol in subjects of the 2nd, 4th and 5th year of the course until they have passed more than half +1 CFU of the credits from the preceding years. Students can only start the training for the State Examination (in the 5th year of the degree course) if they have acquired all the CFUs of the previous four years.

Under national law students can sit each examination several times without restrictions. There are no academic reasons under which students are obliged to leave the course.

5.2.2 Comments

Since there is often a lack of input from outside the specific discipline (see also Section 4.1), the current system of teaching and examinations represents a rather 'closed' cycle. There is a need to encourage or require students to demonstrate an understanding of how one discipline is linked or applied to another. This is essential to learning in several subject areas (e.g. farm animal health and productivity), where an understanding of the interrelationship of closely-related topics is required to function effectively as a veterinarian.

The structure and logical progression that one would expect to find in a veterinary study programme is impeded by the absence of prerequisites, and allowing students to retake each examination many times. A staff member cannot know whether a student has acquired a satisfactory level of competency in a related discipline, upon which they can base their own teaching programme.

A new regulation allowing former students to re-enrol, with full recognition of previously-acquired credits, even after many years is contrary to any concept of the structure and continuity that should be inherent in a credible degree course.

5.2.3 Suggestions

- 5.3 The system of prerequisites should be reinforced, so that students may not enrol for subjects in a later year unless and until they have acquired 80 – 90% of the credits from the preceding year, and any foundation subjects that constitute a necessary basis for a later discipline.
- 5.4 The number of examination retakes permitted should be reduced, so that students who manifestly do not have the motivation or ability to progress through veterinary studies have the opportunity to seek a different career.
- 5.5 In line with changes to the teaching, the examination systems should be developed so that they test skills in the ability to acquire and apply knowledge, not primarily the capacity to memorise.
- 5.6 The Faculty should have a system of external examiners and/or external review of the content and examination of a discipline, to ensure this remains relevant and proportionate to its application in later subjects or professional activity.

6. PHYSICAL FACILITIES AND EQUIPMENT

6.1 GENERAL ASPECTS

6.1.1 Findings

The Faculty of Veterinary Medicine is located on a 5-hectare hillside site close to the historical city of Perugia. The Faculty of Agricultural Sciences, the IZS (the Zooprophyllactic Institute of Umbria and Marche), the Food Sciences, Technologies and Nutrition building, the Botanical Garden, as well as the student's residence and canteen are located in the same area.

The main premises of the Faculty were built in the 1920's in the form of a 2 or 3-storey 'U', with a courtyard that open to views over the surrounding countryside. This main building houses most of the offices, laboratories, microscopy room, the anatomy model room, several clinical and diagnostic services, and the Sport Horse Research Centre and the University Electron Microscopy Centre. The new Veterinary Teaching Hospital (VTH), which started operation in September 2006, enclosed the courtyard, linking the arms of the 'u' with a single-storey block (see next section). Two new multifunctional laboratories were also constructed in the early 2000's.

A little further down the hillside, the *Polo Didattico* was built from 1980 – 1990, and houses the Faculty library and most of the lecture rooms as well as an autopsy room, other library and media facilities, and the Dean's office.

The Section of Food Inspection is housed in a separate building on the opposite side of the road from the main campus.

Table 6.1: Teaching rooms at the FVMP

Room	capacity	lectures/ seminars	Group Work	Practical Work
"Aula Magna"	156	Yes	-	-
Barboni Room	176	Yes	-	-
Room I	50	Yes	-	-
Room II	108	Yes	-	-
Room III	108	Yes	-	-
Room IV (computer room)	28	Yes	Yes	-
Room V	126	Yes	-	-
Room VI	63	Yes	-	-
Room VIII (Microscopy room)	45	Yes	Yes	-
Room XI	56	Yes	-	-
Inter-disciplinary Laboratory 1	25	-	-	Yes
Inter-disciplinary Laboratory 2	25	-	-	Yes
Food Inspection "Aula Magna"	300	Yes	-	-
Food Inspection Room	20	Yes	-	-
Food Inspection Classroom	40	Yes	Yes	-
Parasitology Classroom	60	Yes	Yes	-
Anatomy Lab	30	Yes	Yes	-
Myology Lab	25	Yes	Yes	Yes
Virology and Microbiology Lab	30	Yes	Yes	-
Anatomo-pathology Classroom	50	Yes	Yes	-
Animal Production Classroom	25	Yes	Yes	-
Animal Prod. Biotechnology Lab	3	-	Yes	Yes
Animal Prod. Chemical Analysis Lab	10	-	Yes	Yes
Food Inspection Teaching Lab	16	Yes	-	Yes
Food Inspection Meat Lab	8	Yes	-	Yes
Food Inspection Microbiology Lab	8	Yes	-	Yes
Food Inspection Chemistry Lab	12	Yes	-	Yes
Food Inspection Reading Room	8	Yes	Yes	-
Necropsy room	60	-	-	Yes
Necropsy room	30	-	-	Yes
Internal Medicine Lab (haematology)	10	-	Yes	Yes
Internal Medicine Lab 1 (clinical chemistry)	10	-	Yes	Yes
Internal Medicine Lab 2 (clinical chemistry)	10	-	Yes	Yes

Small animal surgery room	10	-	Yes	Yes
Small animal surgery room	15	-	Yes	Yes
Small animal surgery room	5	-	Yes	Yes
Small animal surgery room (gynaecology and obstetrics)	4	-	Yes	Yes
Large animal surgery room (gynaecology and obstetrics)	30	-	Yes	Yes
Total number	1745	-	-	-

The Faculty has recently established a mobile clinic service which has 3 vehicles used for out-patient care. The Faculty also bought a horse trailer in 2001, and already had a small van.

The Faculty remarks that the buildings are not in an optimal state of maintenance, especially the main building. The University is responsible for the costs of such work. Also, several Faculty structures are still to be completed, some of which are of considerable importance for teaching, such as multifunctional laboratories.

The provision of library and computing facilities is outlined in Chapter 8.

Farm facilities

The University of Perugia has a 28-hectare didactic and experimental agro-zoo-technical farm (AZDS) used by the Faculties of Veterinary Medicine and Agricultural Sciences. It is equipped with barns for large animals (cattle, horses), medium-sized animals (sheep, pigs) and small animals (rabbits and poultry) for practical teaching and research. The AZDS activity is controlled by the Centre for Didactics and Research Services in Agricultural and Veterinary Fields (CeSAV). The University of Perugia also owns another two farms.

The facilities used for training in the food hygiene disciplines have been outlined in Section 4.5.

6.1.2 Comments

The FVM has a pleasant hillside campus, located quite close to the town centre. Perugia is located in a rural region and so access to the countryside is not a particular problem. However, the production animal population in the region is not very substantial. The town is not particularly large, but provides a sufficient small animal and exotic pet caseload for the clinics.

The campus is quite densely built upon, leaving little space for any substantial new construction work. The nature of the site also means building work less straightforward than on level ground, and means that most access road and paths slope steeply. Mobility is further restricted by the narrowness of the access roads, and indiscriminately parked cars. Access and parking difficulties will deter VTH clients, and may be a problem in an emergency, when all entries and exits need to be clear. This situation may be alleviated by a new parking lot being built, but probably a system controlled access through accreditation and numbered parking lots is needed.

The original buildings are not in a very good condition and in need of maintenance and remodelling, with the isolation facilities being noticeably shabby. The team was pleased to hear that further investment for renovation work had been agreed. Although visually quite attractive, the layout, infrastructure and fittings are not those that would be chosen if designing a 'new' faculty.

The facilities were designed for a number of students similar to the current intake. Most of the lecture theatres can accommodate all the undergraduates from one year at a single sitting, but teaching laboratories are somewhat small, meaning practical sessions have to be repeated several times. Two new multifunctional laboratories have been constructed, but the Faculty probably needs some more large laboratories. At present, many areas are still considered as the 'territory' of the former institutes, which reduces the efficiency of their utilisation. The joint use of facilities and the sharing of equipment should be encouraged. This would allow for a more effective use of resources; space, staff, as well as finance.

The completion of the new Veterinary Teaching Hospital (see next section) is a major achievement since the 1998 visit, and it will considerably improve the extent and quality of hands-on teaching in clinical disciplines. However, now the new Hospital is operational, and with a new departmental structure, the Faculty needs to look at the organisation of clinical activities and premises to see how they can be

utilised to the maximum and most effectively fulfil their teaching, service and research role. The *Polo Didattico* is also a very important teaching facility.

As far as instrumentation is concerned, the new VTH and their laboratories are very well equipped with the latest technology. However, the equipment of teaching laboratories for basic disciplines is generally not adequate.

It is not the purpose of an evaluation visit to carry out a comprehensive or technical audit of the provision for health and safety at an establishment. However, although these aspects are generally satisfactory, the team did note that the Faculty should check the provision of safety equipment (eyewashes, fire-blankets, etc.) in the laboratories and ensure that chemical and gas storage was in order.

The Faculty is well involved in the University Farm, but its current use is mainly for research. The refurbishment programme of the farm and the planned premises for poultry and rabbits would considerably enhance the didactic capacity of the FVMP, as long as its main use is shifted to it being a teaching resource for students.

The Mobile Clinic is not yet fully operative and students are not adequately involved in this service

6.1.3 Suggestions

- 6.1 The programme of refurbishment and renovations should be continued, in particular favouring bringing into service larger laboratories for shared use.
- 6.2 There should be a plan and clear budget line for equipping teaching facilities, in particular to improve practical teaching.
- 6.3 The activities and facilities of the previous institutes should be systematically integrated to make better use of physical (as well as human) resources (see also Suggestion 2.1 and 6.6).
- 6.4 The University farm should be clearly identified as a teaching resource and used to the maximum for applied training on production species.
- 6.5 The renovation work at the University Farm should be continued, and the range of species and housing systems extended.

Suggestions relating to the new Veterinary Teaching Hospital and the organisation of clinical facilities and activities have been made in the following section.

6.2 CLINICAL FACILITIES AND ORGANISATION

6.2.1 Findings

Clinical activities have historically been based around separate section and treatment clinics for internal medicine, surgery and obstetrics and gynaecology, housed in the two ends of the 'U' of the main building. The new Veterinary Teaching Hospital (VTH), which opened in late 2006, linked into and joined these, with a centralised small animal reception and examination rooms.

The majority of the teaching in clinical subjects is given in the VTH, although the Department of Veterinary Pathology, Diagnostics and Clinics also uses a Mobile Clinic, a Sport Horse Research Centre, the Experimental Agro-Zootechnical Farm (St Angelo) and three other University farms (Casalina, St. Apollinare, Vocabolo) for some teaching.

VTH and clinical services

Vehicular access to the VTH for client cars and transport vehicles (horses and farm animals) is via a narrow lane. The site layout and topology does not readily allow an alternative vehicular access from the main road.

The VTH is open 08:30 – 13:00 on weekdays all year round for both 1st opinion and referral cases, with out-patient visits scheduled by appointment. There is an emergency service for small animals and for equine patients and production animals, with patients admitted after a call to the duty clinician or to the mobile telephone of the clinical team of the VTH. A 24-hour care service is provided for all hospitalised patients operated by volunteer groups of final-year undergraduates in rotation, under the supervision of postgraduate students and academic staff. The daily caseload is around 8 - 15 small animals (12.3 on average in 2005) and 1 or 2 large animals (1.2 on average in 2005), of which over 90% are horses.

The VTH offers clinical services in:

- Diagnostic imaging – radiography, CT and ultrasonography
- Anaesthesia
- Soft tissue surgery– small and large animal
- Orthopaedics
- Neurosurgery
- Critical care in small animals and colic surgery in equines
- Equine Sports Medicine
- Clinical laboratory
- Dentistry
- Ophthalmology and Otology
- Endoscopy
- Electrodiagnostics
- Cardiology
- Oncology
- Endocrinology and Dermatology

Some services, such as dermatology and endocrinology are not offered every day, and others such as neurology, urology, and toxicological analysis are to be implemented in the near future. There are three board-certified members of European Specialties Colleges at the FVMP (Veterinary Public Health, Animal Reproduction, and Veterinary Pathology). Seven external specialists in livestock (bovine, swine, equine) have an agreement with the Faculty, and are consulted whenever required.

The Faculty has good relationships with practitioners from the region of Central Italy, and about 80% of all the cases are referrals (65% and 95% for small animals and horses respectively). The Faculty would like to maintain a balance between referral and primary cases to support basic training as well as specialist activities.

The fees for clinical services are based on those specified by the local Board of Veterinary Surgeons, and in general are slightly higher than those charged by practitioners. There is no other outside practice whose organisation is comparable to that of the VTH in the area in terms of facilities, equipment and expertise. However, most local practitioners offer longer opening hours.

Clinical services remain based around the former institutes of surgery, medicine and obstetrics and gynaecology, with some clinical services centralised within the VTH, including:

- Dedicated wards for dogs, cats and small exotic pets
- A dedicated ICU for medical and surgical patients
- Radiography unit with separate X-Ray equipment for small and large animals supported by digital

- imaging and storage facilities
- Computerised tomography for medical and surgical cases (although this was in need of repair at the time of the visit, and scheduled for replacement with upgraded equipment)
- Sterilisation facilities
- A centralised laboratory with facilities for student participation
- A high speed tread-mill room for horses

The clinical records of animals are in written and electronic form. Clinical history, diagnostic investigations, diagnosis and therapies are kept in different computer-based systems for each specific operative unit. The Faculty has recently bought a computer network connected by a LAN to Internet with a computerised system for the processing and consultation of clinical records, providing modern management of clinical activities.

Limited isolation facilities are available for large animals, but there are separate rooms for equines, bovines and swine. They are separated from the VTH with their own access, but are not in a good state of repair. Dedicated isolation facilities are not currently available for small animals, but are planned for the near future. In an emergency disused kennels can be used.

Table 6.2.1. Hospitalisation and isolation places

	Dogs	Cats	other pets	Horses	Cattle	Small ruminants	Swine	other farm animals
Hospitalisation	60	26	10	20	3	3	2	-
Isolation	2	3	25	2	2	2	2	75

Surgery section

- The Large Animal Surgery Unit is located on the ground floor with a padded induction/recovery box, four other recovery boxes and a large animal surgery room. There is a tarmac trotting area and a lunging circle for lameness investigation adjacent to the VTH, but these are in a poor state of repair.
- The Small Animal Surgery Unit is located on the first floor and comprises three small animal operating theatres for specialist surgery: orthopaedics including minimal access surgery, soft tissue (two tables), and dentistry, with rooms for minor procedures and ophthalmology. The rooms are well equipped and robotic closed circuit TV for demonstration of procedures to students remotely is available

Internal Medicine section

There are six rooms dedicated to internal medicine specialist investigations (including endoscopic and ultrasound examinations and electrodiagnostics) on the ground floor.

There is a clinical strength in cardiology, which is mirrored by the strength in ultrasound. However, other areas of internal medicine are treated in a more generalist fashion, whilst endocrinology and dermatology are only offered on an intermittent basis.

Obstetrics and Gynaecology section

Referral male and female reproduction services are offered, but routine primary reproductive problems are seen more rarely. There is little integration with the other clinical services, with a separate consultation room. A room dedicated to work on anaesthetised large animals is being decommissioned.

Diagnostic services

A centralised Clinical Pathology Laboratory offering haematological, cytological, clinical biochemistry, urine and faecal investigations is situated on the first floor, receiving approximately 30 samples per day from the VTH and private practitioners. It is equipped with adequate analytical machines, but does not have state-of-the-art equipment, meaning some tests must be sent externally. Students rotate through the laboratory, and a student microscopy area is available.

Different diagnostic services (e.g. anatomo-histopathology, cytology, parasitology, microbiology, veterinary toxicology, haematology and clinical pathology, Holter ECG, imaging diagnostic investigations) are also available to the VTH and external practitioners.

Mobile Clinic

A mobile veterinary service is available on request for emergencies during the opening hours of the VTH. This service is also used periodically to take students to farms for large animal reproduction practicals. Three vehicles (with 5, 6 and 9 seats) are available, equipped when necessary with basic medical supplies and with any other mobile medical instruments of the establishment, such as ultrasound, electrocardiograph, endoscope, etc.

The mobile clinic makes about 250 visits per year, mainly to horses, cattle, and small ruminants as well as to poultry farms.

6.2.2 Comments

Active and comprehensive clinical services are essential to a veterinary Faculty and its teaching. The team was pleased to note the new Veterinary Teaching Hospital, a purpose-built clinical facility that significantly improves the provision of clinical services and training. These modern premises are a major improvement from the facilities available at the last visitation.

Regarding equipment, the clinics are well provided with the latest technologies, including videoendoscopy, Doppler ultrasound, digital radiography, computerised tomography and minimally invasive surgery. However, some large items of equipment are very expensive to purchase, replace or maintain, and that the Faculty is hindered by the financial arrangements that prevent them re-investing clinical income in facilities and obtaining equipment by lease-hire.

The older clinical premises are in need of renovation. With the new VTH and structure of larger departments, this need to physically remodel the clinical premises should be used as an opportunity to further develop and rationalise clinical activities to make the best use of these excellent premises, in particular:

- completing the change to genuinely and fully integrated species-based clinics – i.e. equine, small animal and farm animal This should be a priority;
- reorganising the facilities in the most logical and functional way for species-based clinics;
- renovating older and currently under-used facilities to fit with the new structure and way of working;
- refurbishing the isolation facilities.

The small animal medicine and surgery sections seem to be working effectively together, and this cooperation should strengthen as the VTH becomes more established. Obstetrics and gynaecology, however, is clearly weaker in terms of premises, engagement in clinical work and caseload, and is not providing satisfactory training or service in its field. The obstetrics and gynaecology clinical activity should be physically and organisationally merged into the more active clinical services, with small animal obstetrical procedures primarily coming under the remit of surgery.

With the current obstetrics and gynaecology clinics being in a poor state, but on the ground floor at one end of the new VTH, it would be logical and possibly more economical to convert these into a renovated small animal surgery section, rather than maintain the awkward current arrangement of transferring surgical patients to and from the 1st floor via a lift that it is currently planned to replace with a new shaft and installation.

Although its premises need renovation, the equine section is functioning well, and clearly developing as a centre of expertise. All equine clinical services should be concentrated into the current unit.

Production animal work needs to be developed to close an evident gap in the teaching and other activity concerning farm animals. From one side, there side need to be much greater and more structured Faculty involvement and student exposure to single animal procedures, which principally implies work with cattle. Along with this, from the perspective of production there needs to be a far more applied approach to the veterinary role in the maintenance of the health and productivity of farm animal populations. This

implies systematic programmes of sampling and evaluating data on herds and production environments (e.g. hygiene, housing, feed, reproduction, etc.), and the analysis of this to proactively address problems and implement improvements.

A clear attribution of responsibility for practical farm animal health is needed, so that this applied approach to farm animal activity is properly covered in the teaching. This primarily means increasing the activity and functionality of the Mobile Clinic, with dedicated staff, so that it is going on a daily basis to analyse herds and production parameters, dealing with any necessary on-farm clinical or health procedures, and generally demonstrating typical farm animal issues to students. This should be backed up by tutorial sessions concerning case studies, the analysis of production parameters, and suggestions of measures for improvement.

The VTH and Faculty should seek to build on the current clinical activity to develop the quality of professional services; for instance;

- extending the open consultation hours of the clinics and increasing the level of hospitalisation;
- develop centralised clinical services of a high level - anaesthesia/intensive care, diagnostic imaging service, central pharmacy, diagnostics laboratory;
- Aim to increase and extend specialisation.

Students should be integrated into the working of the clinics in a structured and comprehensive way. This would aid clinicians, and guarantee a minimum level of clinical exposure for every student.

Overall, the expertise of the clinical staff is of a high standard and extensive even if, at present, some specialists are lacking in certain clinical fields. Clinicians with special interest in specific disciplines provide a good range of important referral services.

The number of academic clinical staff is not adequate in all areas and current staffing levels will hinder any further developments. The clinical services and clinical teaching can only function through the unpaid work of postgraduate students. The clinical services also depend on the efforts of the undergraduates, and there needs to be a more structured and equitable system for their participation in clinics.

Similarly the clinical support staff are skilled and highly motivated, but insufficient in number. They are integral to teaching and more are clearly needed. Furthermore they are relatively poorly rewarded for the skilled and potentially hazardous work they perform compared with technicians in other faculties and departments.

The involvement of basic sciences within the VTH is currently very limited. The Faculty should seek to build up contact between the clinical and paraclinical areas. This would make use of paraclinical expertise in services (e.g. for diagnostic work), promote the interlinking of basic and applied teaching i.e. provide 'bridges' and a basis for interdisciplinary teaching, and encourage or stimulate joint research, which is often difficult to undertake in purely clinical fields. Pharmacy and pharmacology provides an illustration, since it's management within the clinics needs to be improved, and it is planned to have a central pharmacy, with pharmacologists more closely involved in the clinical work.

6.2.3 Suggestions

- 6.6 The Faculty should continue to physically and organisationally integrate clinical activities along species-based lines, in particular:
- Integrate small animal obstetrics and gynaecology into the VTH, to improve and professionalise the provision for clinical work in this field;
 - Establish a clear focal point for production animal clinical and health work, including a fully functional and active mobile clinic dealing with both single animal work and proactive herd-health management programmes.

Suggestions 4.11 and 4.20 concern the need to have an integrated approach to farm animal health and productivity.

Suggestion 7.2 concerns the need to increase the farm animal exposure, including more single animal

work on cattle.

The need for the University Farm to have a primary teaching role, including for farm animal clinical work, is outlined in Suggestion 6.4.

- 6.7 The refurbishment and reorganisation of the older clinical premises should be continued in the most logical and functional way for species-based clinics, in particular:
 - Renovation of the equine clinics as foreseen, with refurbishment of the lameness examination area;
 - Provision of modern small animal premises, which should best be done by remodelling the old and currently underused obstetrics clinics on the ground floor, rather than upstairs;
 - Provision of a dedicated local of production animal work, primarily as a ‘base’ for the Mobile Clinic;
- 6.8 The isolation facilities for small and large animals should be improved, through refurbishment of the old isolation stables and the creation of a dedicated facility for dogs, cats and other pets.
- 6.9 The access and parking for clients should be improved, and steps taken (e.g. controlled access) to ensure this does not become impeded with non-client vehicles.
- 6.10 The opening hours of the Veterinary Teaching Hospital should be extended to increase the clinical caseload and the opportunities for and continuity of student training.
- 6.11 The Veterinary Teaching Hospital, Faculty and University should seek to develop the level of specialisation through:
 - Supporting and encouraging clinical staff seeking to gain European Veterinary Specialist status;
 - Improving provision of intermittent clinical services, e.g. dermatology, and seeking to add new competencies

The desirability of establishing structured and paid internship and residency programmes has been mentioned in Chapter 12.

- 6.12 The Veterinary Teaching Hospital should have more autonomy and flexibility to reinvest the income generated into equipment, personnel and payments for out of hours duties and higher skills.
- 6.13 The Veterinary Teaching Hospital should have a centralised pharmacy, both to professionalise this activity, and as part of wider effort to build closer links to paraclinical disciplines to improve teaching, research and clinical services.

7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

7.1 Findings

For practical anatomy training, viscera coming from the slaughterhouse and pet cadavers coming from the clinics are collected once a week. A number of birds are also examined during practical anatomy training. Skeletons and bones of the main domestic species, horses and cattle limbs and a number of anatomical models are available.

For necropsy and pathological anatomy teaching, carcasses of large and small animal are collected from the Faculty and private clinics. Dead pigs are also provided by a private company in charge of their disposal. Necropsies on livestock are also performed in the Diagnostic Section of the nearby Istituto Zooprofilattico, and field necropsies are arranged for students by the teaching staff whenever possible.

Practical training in animal production regarding morphological evaluation is carried out by the students on in-patient animals at the Faculty and on livestock housed on the University farms, which totals about 210 cattle, 140 sheep, 4 pigs (and a variable number of piglets) and 12 horses.

Animals awaiting slaughter in the nearby Ponte San Giovanni slaughterhouse are available for ante-mortem inspection by students supervised by food hygienists or clinicians, although not used for rectal palpation.

The animal material seen in the establishment clinics is detailed in Table 7.1.

Table 7.1: Number of animals seen at FVMP (2003 - 2005)

		consultations			hospitalisations			autopsies		
		2005	2004	2003	2005	2004	2003	2005	2004	2003
Farm animals	Cattle	17	13	12	7	4	4	54	51	3
	Horses	447	354	443	252	200	275	48	52	39
	Small ruminants	11	7	8	6	2	3	130	118	122
	Pigs	3	2	3				113	109	100
	Other farm animals ¹	202	204	210		1	3	2020	2023	2061
Pets	Dogs	3483	3310	3246	503	509	610	195	170	185
	Cats	404	454	445	79	83	69	76	66	50
	Other pets	603	341	322		1	1	200	6	5

¹ predominantly poultry

About 80% of the clinical cases are referrals, with the Faculty aiming to maintain a balance between referral and primary cases to provide basic training as well as specialised services.

The mobile clinic makes about 250 visits per year, mainly to horses, cattle and small ruminants but also covering poultry farms.

The ratio of students graduating:clinical caseload in pets is about 1:47 (96:4490).

The ratio of students graduating:clinical caseload in large animals is around 1:14.2 (96:1359).

The ratio of students graduating:necropsies is about 1:6.4 (96:616). For reasons of comparability between reports, necropsies on 'other' farm or pet animals (such as poultry, rats and rabbits) are not included when calculating the ratios.

The access to animal material of different types for training purposes in slaughtering and food inspection is outlined in Section 4.5.

7.2 Comments

As remarked in Section 4.2, there were considerable concerns about the availability and use of animal material in anatomy, with an apparent lack of dissection work by students. This needs to be rectified.

The links to applied activity and contact with animals and herds during the teaching of the animal

production disciplines could be improved (see Section 4.3). However, the team would commend the 'Green Week' organised by the Faculty to give students a first exposure to farm animals and their handling.

The amount and diversity of material available for necropsy is good. Systematic post mortem diagnostic investigation of all animals that are hospitalised and die at the VTH would provide more teaching material with good links to the clinical aspects.

There is in general sufficient caseload for teaching companion animal clinical work, although more would be welcome. The newly-opened Veterinary Teaching Hospital should lead to a rise in caseload, since at current levels, there are on average only around 12.3 companion animal cases per day, with the number of cats being particularly low. Extending the opening hours of the clinics, and building up links with referring veterinarians would also help increase the level and diversity of caseload.

The species-based clinics have yet to be fully implemented (see Section 6.2), and there is considerable variation in the level of clinical activity of different sections (former institutes). The team was concerned about the caseload and student exposure in obstetrics and gynaecology in all species (see Section 4.4).

The production animal caseload and component of the teaching needs attention to ensure there is systematic exposure of all students to clinical and health work in these species. The overall figures for large animal caseload are unsatisfactory, and when the equine caseload is removed, the farm animal caseload looks quite weak. As noted elsewhere, there is no focal point for production animal work, whereas the Hospital provides a clear identity and cohesion for companion animal activity. A full species orientation to clinical activities would help to clarify where responsibility for farm animal work lies. Other measures such as offering free transport for production animal cases might raise the caseload in these species in the VTH, but realistically the Faculty has to concentrate on expanding the mobile clinic activity to get access to enough material for teaching.

7.3 Suggestions

- 7.1 There should be much greater provision and use of animal material in anatomy (especially dogs), in particular for use in dissection, but also for live anatomy, imaging anatomy, and other aspects that clearly have applied value (see also Suggestion 4.9 regarding anatomy teaching).

Suggestion 4.7 concerns the use of extramural work in the course.

- 7.2 There needs to be much greater access to farm herds of all species for integrated training on applied animal health and productivity, and to cattle specifically for both herd-health and single animal clinical work.

Suggestion 6.6 refers to the need to have a focal point for production animal work, which is important for providing systematic student exposure to these species.

Suggestion 4.14 relates to the need to address problems in clinical obstetrics and gynaecology.

8. LIBRARY AND EDUCATIONAL RESOURCES

8.1 Findings

The library of the Veterinary Faculty is a section of the Library Service Center (CSB) of the University of Perugia, and is situated in the *Polo Didattico*. The library has 433 m² in total on two levels; a lower floor with books and back-issues of journals (kept in stacks) and an audio/video room; upper floor with reading and journal consultation rooms, offices, and a computer area with 14 PCs and internet access. One reading room has recent journals for open consultation, and received 165 journals in 2005. The Library has 72 places for reading and working, including those in the language laboratory.

Book and journal collections can be used by students, academic staff, veterinary practitioners and public health veterinarians. Books are not openly accessible, but are kept in stacks, and can be ordered from a service desk for 1-day consultation, or borrowed for up to seven days. The Library made about 1500 loans in 2005. The on-line book catalogue is searchable from a PC located near the library counter. The books on food science are not in the main library but in that of the Faculty of Agriculture and the food hygiene section. Texts on other veterinary subjects are also often located in section libraries.

The Library is managed by the Director and the Library Council. The Library and the audio-visual library are operated by a staff consisting of 3 full-time employees. These are assisted by a part-time employee and 20 students, who work 150 hours each. The Library is open from 8:30 to 19:00 Monday to Friday, (08:30 - 13:30 during August).

The computer area of the Library has 14 PCs for students with free access to online databases (PubMed, CAB, Ovid, and other resources). The CSB also provides a virtual library, available from computer connected to the University server, where some full-text electronic journals are available.

In addition, there is a computer room with 12 positions which is normally utilised for teaching, but can also be used by students themselves when classes are not being held. The computer room is open in the same hours as the main library, and students have free access to these computers for their own use. For use of the computers students have to an electronic ID card that allows 90 hours of access.

There are also libraries and book collections associated with many of the former institutes.

8.2 Comments

The location of the Library in the premises of the FVMP is very positive. The Library is somewhat short of space and staff for a satisfactory support of students, for instance there are not enough study places.

The opening hours are satisfactory, but students would benefit from these being extended to Saturday mornings.

The veterinary library is moderately stocked with textbooks and journals, which are of a good quality and variety, though should be periodically updated and renewed. The current system for on-site consultation of books is not user-friendly since books are not available on shelves for browsing, but have to be specifically requested. A more modern approach is necessary, whereby learning resources are openly accessible, with appropriate security systems in place.

The fact that the library is only allowed to stock one copy of each book, apparently due to legal regulations, is a bizarre and unsatisfactory situation that does not seem to apply to other European veterinary faculties. It would be expected that a library would hold a non-removable reference copy of important textbooks, plus one or more copies for loaning. The Faculty needs to base its teaching far more on international textbooks and self-directed learning by the students (see Section 4.1 and 5.1), a ready access to appropriate bibliographic resources is vital for this

The libraries of the former institute are of limited utility, as they are not operated by librarians and books cannot be borrowed by undergraduates. They are not much used by students, and it would be better to concentrate resources into the central facility. An exception to this would be to have a clinical reference library within or very close to the VTH both for ease of consultation by people working in the clinics,

and for their use during quiet periods of duty.

The library facilities do not satisfactorily support viewing or using audio visual material (videos, CD-ROMS, interactive computer programmes). Additionally, the library does not stock copies of professor's class notes and there is no copy centre on campus, so students may find difficult to acquire this teaching material. There also needs to be more assistance given at Faculty level for the maintenance and dissemination of teaching material, such as CD-ROMS, class notes and website publications.

With only 14 computers for student use at the veterinary campus, there is inadequate provision of computing facilities. Computers and e-learning have become an integral part of education and modern life, and should be routinely and systematically available and used in structured teaching, for student self-directed work, and for general daily activity. In this context, limiting student access to 90 hours is not appropriate.

8.3 Suggestions

- 8.1 The library should increase the space available for use by students, and it has to extend the opening hours to Saturday mornings, implying reinforcement of the library staff.
- 8.2 The Library should switch from a counter-based service for specific requests to one where books are openly available for consultation.
- 8.3 The range, number and availability of international textbooks should be improved, to provide an externalised basis for teaching.
- 8.4 The Library should stock and appropriate number of the most relevant (international) textbooks, generally meaning at least one copy for borrowing along with a reference copy. The origin, logic and validity of any 'legal' impediment to a University maintaining such a basic educational resource should be rigorously questioned.
- 8.5 The provision and accessibility of computers should be increased.

9. ADMISSION AND ENROLMENT

9.1 Findings

Year	2004/05	2003/04	2002/03	2001/02	2000/01
Number applying	285	383	320	333	312
Number admitted (non-EU citizens)	95 (+5)	117 (+12)	117 (+12)	117 (+12)	110 (+12)
Number graduated		91	103	133	82

Admission to the Faculty of Veterinary Medicine is via a selection procedure dictated by national law. The minimum requirement for Italian students is a General Certificate of Education, obtained after five years of secondary school. School leavers have a very variable knowledge of scientific disciplines depending on the studies followed. To accommodate this, the Faculty has since 2000/01 organised pre-enrolment courses to bring the incoming students up to a standard level.

Selection to the Faculty is determined by a national examination using a multiple choice questionnaire. A selection process based on an equivalent school education and the same national MCQ questionnaire is required for non-nationals. In addition, non-EU students are required to pass a language examination.

Since the 1989/90 academic year, the veterinary degree course has had limited enrolment (*numerus clausus*). Each year, the Senate of the University of Perugia, based on the recommendation of the Faculty Council, indicates to MIUR the maximum number of students (EU and non-EU) that can be enrolled in the 1st year. However, student numbers are the primary criteria on which University and faculty funding is based (see Chapter 3). Between 2003/04 and 2004/05, the *numerus clausus* was reduced to 100. Total demand for places exceeds capacity, with approximately one third of applicants receiving a place.

790 undergraduates are currently enrolled on the 5-year veterinary course, with less than 5% of undergraduates being non-nationals. Around $\frac{3}{4}$ of the students enrolling and of applicants are female. It is estimated that 80-90% of entrants come from an urban background, with little or no experience of farming.

The average duration of studies is at 7.25 years (it was about 8 years in 1998). There are no academic reasons which obligate students to leave the programme. A new national law allows any student who has not completed the study programme to re-enrol, with their previously acquired credits recognised, even after many years.

The Faculty remarks that the drop-out rate and duration of studies could probably be reduced more selective admission system, with a threshold for entry and an interview, to enrol only high motivated and prepared students.

In conjunction with other Faculties, the FVM also participates in two other 3-year degree courses, 'Hygiene and quality of animal production' and 'Biotechnology'.

9.2 Comments

Although the admissions procedure selects the students with the highest marks in the national MCQ examination, there is no threshold for the standard. The FVMP must accept a student intake equivalent to its *numerus clausus*. However, of greater concern was the fact that no weight or credit can be given either to the scientific knowledge a student obtains at school, nor to any experience they may have with animals. The selection process thus does not allow the Faculty to choose students with a particular aptitude for veterinary training. The Faculty is rightly concerned that the basic knowledge of the students at admittance is sometimes poor, and that the majority have no or very limited familiarity of large animals. This will adversely affect the drop-out rate, the average length of study, and potentially the quality of the new graduate. These quality criteria will also be very negatively affected by the new regulation that permits the *ad hoc* resumption of studies by anyone who has formerly started a veterinary degree. This misconceived measure runs contrary to any concept of a structured veterinary degree course that grants access to a profession with sizeable legal and ethical responsibilities.

The team would agree with the Faculty that the drop-out rate and long duration of studies could be

reduced by a more selective admission system, with a threshold for entry and an interview, to enrol only high motivated and prepared students. A rigorous examination at the end of the first year, which has to be passed in order to proceed to the second year of study would also help ensure competent and motivated students.

The team was pleased to note the welcome reduction in student intake this year. However, it was noted that, firstly, the intake in the preceding three years actually rose to almost the level noted as excessive in the previous evaluation, and, secondly, that staff number and caseload available at the VTH indicate that student intake is still too large. There is significant sympathy within the Faculty with this view receives, but coupled with the belief that further reduction in the intake of students further would conflict with University policy to increase income. However, any revision of intake should be in the downwards direction, and not reverse the recent trend.

There is general consensus amongst Faculty staff, practitioners and alumni, and students that there are too many veterinary faculties in Italy, producing too many graduates. Although it is stated that in principle MIUR takes account of the national demand for veterinary manpower when considering *numerus clausii*, the continuing proliferation of faculties indicates this is ineffective in practice. However, students believed they would be able to find employment after graduation, albeit not necessarily at the level of remuneration they feel they deserve.

9.3 Suggestions

- 9.1 There should be a greater degree of selectivity in the entrance process, to ensure that all students starting the veterinary course genuinely have an adequate and functional grounding in the basic subjects (mathematics, biology, chemistry, physics) and the motivation and ability to complete veterinary studies.
- 9.2 Students should be required to proceed through and complete the veterinary studies in a structured and timely manner, and lose all credits if they are no longer academically active on the course.
- 9.3 There should be effective mechanisms to address the oversupply of veterinary faculties and graduates nationally.

As remarked in Suggestion 5.4, students who lack the motivation or ability to complete veterinary studies within a reasonable time-frame should not be permitted to continue *ad infinitum*.

10. ACADEMIC AND SUPPORT STAFF

10.1 Findings

Overall, the University of Perugia employs 368 full professors, 398 associate professors, 448 researchers, 563 technicians, 512 administrative staff, 89 librarians, and 159 in the technical general service.

Table 10.1: Academic and support posts in Departments

Department	Academic staff				Support staff			Total
	Prof.	Assoc. Prof.	Researchers	Fellows	tech./anim. carers		admin./ general	
					teaching	res.		
Bio-pathological sciences	10	6	16.5	7 (3)	17.85	12.5	13.5	83.35 (3)
Clinical Sciences	14	10	13	8 (11)	15.15	11.5	19	90.65 (11)
TOTAL	24	16	29.5	15 (14)	33	24	32.5	174

The figures in parentheses are the number of practitioners providing teaching. General Faculty staff, such as librarians, etc., have been attributed 50% to each department. The routine cleaning and maintenance of buildings are ensured by University. Undergraduate students also work part time (150 h/students) as support staff in the Library, departments and other services.

Four academic staff from other faculties provide teaching in physics, botany, rural economics and rural construction, as well as there being one mother tongue English lecturer.

The ratio of teaching staff:students is about 1:11.5 (68.5:790) or 1:8.2 (68.5:565) if *fuori corso* students are excluded from the calculation.

The ratio of teaching staff:support staff is about 1:1.3 (68.5:89.5).

The number of budgeted teaching staff has increased by almost 10% compared to the level in 1998. The relative number of administrative staff is higher than in 1998.

The allocation of teaching staff to the departments is determined taking in consideration the triennial development plan of the Faculty concerning prospective research and didactical duties in each scientific area. The support staff distribution is decided by the Academic Senate on the basis of the requests arising from the departments. In addition, departments may recruit non-permanent staff by using their own funds deriving from service income.

The current recruitment policy of the Universities is tightly constrained by the available budget. Priority is given to the appointment and promotion of academic staff rather than support posts.

Academic staff salaries are determined by national regulation, and range from €1100 to €5250. This can be supplemented by other activities (i.e. external teaching) authorised by the Faculty. Positions are filled by open public competition. There is no difficulty in the ability to fill vacancies as soon as the budget is made available to the Faculty.

76% of the academic staff of the Faculty are veterinarians, the non-veterinarians being predominantly the personnel engaged in the teaching of basic subjects.

The Faculty remarks that the number of staff members taking care of animals is considered not adequate to the routine activities of the clinics. Moreover, part of the animal caretakers job is carried out by students during their full immersion weeks of clinical and practical rotation and at the AZDS

10.2 Comments

The total number of academic staff is below the level of 80 full-time position regarded as the minimum 'critical mass' needed to cover the full spectrum of veterinary activities. As noted elsewhere, one primary activity needing reinforcement is that of production animal health, both through the attribution of positions to a farm animal focal point, and through a reorientation of the animal production teaching to the applied needs of farm animal veterinary professionals.

The efficiency of and effectiveness of staff use (both academic and support posts) would be improved by a greater degree of integration and joint activity within the new and larger departments (see Chapter 2).

The team was pleased to see that the number of academic staff has risen since the last evaluation. However, the ratio of teaching staff:students is still unsatisfactory compared to the recommended ratio of 1:7.5. Staff are also teaching on other degree courses.

The ratio of teaching staff:support staff is satisfactory. In view of the remarks by the Faculty, as well as the observations of the team, it would be sensible to take a fresh look at the distribution of support staff in relation to functions and workload. As they have substantially expanded, in terms of both their size and the level of activity, the clinical areas are rather under-manned. Currently, graduate and undergraduate students, as well as staff, are undertaking some of the support staff roles, but this is not an appropriate use of their time, nor is it a good substitute for a dedicated cadre of support personnel.

The team was pleased to note that it is apparently possible to recruit and pay additional staff from income generated. This should be a priority use for the clinical income attributed for personnel use (see Chapters 3 and 6).

As mentioned in Section 5.1, teaching evaluation and feedback systems need to be more specific and robust. They should provide the basis for clearer top-down direction of general policy and overall orientation, conduct and aims of teaching.

Recruitment, promotion and salaries are determined by national and/or University regulations and procedures. It would be beneficial for both staff and Faculty development to have some recognition of the specificities associated with veterinary science and medicine, in particular in the clinical fields, *viz*:

- The need to ensure there is a high standard and continuity of clinical services;
- The intensive nature of clinical training, which requires a subdivision of students into groups of 2 – 4 to be effective;
- The need for staff to take higher clinical training, in particular to aim for European Diplomate status.

These obligations of clinical academic positions add considerably to the workload and commitment required of staff, and ought to be recognised in terms of payment for extra duties or level of skill and/or career progression.

10.3 Suggestions

- 10.1 The Faculty staff should be reinforced, in particular to provide adequate coverage of production animal health management (see also Suggestion 6.6)

Suggestions 2.1, 6.6 and 13.1 are concerned with the greater integration of activities within the new departmental structure to make more efficient and effective use of resources.

- 10.2 The additional duties and requirements that are intrinsic to a clinical academic position should be recognised financially and/or in terms of career advancement (see also Suggestion 6.11).

Suggestion 3.3 and 6.12 concerns the use of clinical income to reinvest in improving clinical services.

11. CONTINUING EDUCATION

11.1 Findings

The Ministry of Public Health has established compulsory Continuing Education in Medicine (CEM) for health professionals involving all active veterinarians. The ministerial CEM Board establishes the minimum requirements for continuing veterinary education necessary for maintaining a license, for those working in the practice of veterinary medicine or in the public health system.

Every practitioner and public health veterinarian must earn a minimum of 150 credit points of approved CEM activity in each three year period following the date of his/her admission to the Board of Veterinary Surgeons.

The Faculty co-operates with several professional organizations and competent authorities in the design, implementation, and quality control of continuing education (CE) programmes.

18 courses were organised by the Faculty in 2004 and 2005, with an average of around 30 participants. Ten of these were on abdominal echography and echocardiography in dogs, the only topic covering small companion animals. Three courses were offered on horses, 3 covering dairy cows, and two concerning EU legislation and regulations. Five further CE courses were organised in the Faculty by outside bodies from 2004-2006 (3 on horses, 2 on dogs).

Three distance learning courses were offered with 14, 20 and 22 participants respectively.

Recently, two new different Commissions of the Faculty have been established to improve and coordinate the e-learning and continuing education programs.

11.2 Comments

The team was pleased to note that the FVMP has recently taken steps to improve and coordinate the CE offered. This is a field where a veterinary faculty should play a leading role as a provider. Continuing professional education also provides a good bridge to and point of contact with local practitioners. However, at present, CE is offered by the Faculty staff in a rather *ad hoc* manner with a limited range of specific topics.

Working in consultation with practitioner associations, the Faculty should aim to establish a clear and structured concept for CE, for instance consisting of consecutive blocks covering all major disciplines of veterinary science.

With CE is now obligatory for veterinarians working in practice and in public health, providing a good programme should generate revenue for the Faculty, as well as the benefits of a broader contact with veterinarians working locally.

11.3 Suggestions

- 11.1 In collaboration with local veterinary associations, the FVMP should seek to develop its continuing professional education activities.

12. POSTGRADUATE EDUCATION

12.1 Findings

Postgraduate Research Training

The Faculty offers places on five 3-year PhD programmes in its main areas of research:

- Equine Science (5 full-time students and 3 part-time students enrolled)
- Veterinary Public Health and Food Hygiene (no students enrolled)
- Small Animal Physio- pathology and medicine (4 full-time students enrolled)
- Livestock Production and Pathology (6 full-time students enrolled)
- Obstetrics & Gynaecology (1 full-time student and 3 part-time students enrolled)

Students enrolled full time in these research training programmes receive a salary from the University. Part-time students are sometimes funded by industrial employers. Ph.D. students form the backbone of the 24-hour and hospitalisation services.

The Faculty has made administrative provision for five 3-year postgraduate specialisation courses:

- Food Hygiene
- Animal Health, Breeding and Zootechnical Production
- Animal Nutrition
- Veterinary Biotechnologies
- Horse Medicine and Surgery
- Bird, Rabbit and Game Technology and Pathology

Currently, only the first two courses, which are required for employment within the public health services in Italy, are running with 20 and 13 part-time respectively. The Faculty intends to start the commencement of the specialisation school in horse medicine and surgery in the next academic year

The Faculty offers two taught Masters courses. A two year programme in Clinical Biochemistry is offered in collaboration with the University of Pisa, with 20 part-time students enrolled. A one-year Masters programme in Animal Assisted Activities and Therapies (pet therapy) will be run in collaboration with the Faculty of Medicine, starting from the 2006/07 academic year, with 25 part-time students enrolled. In addition, Masters degree between the University of Perugia and those of Tirana and Pristina has been approved, funded by MIUR and Ministry of External Affairs.

Students involved in the specialisation or Master's training do not receive any grant or salary.

Postgraduate Clinical Training

Graduates may enrol for a year-long training in the Sections of Internal Medicine, Surgery or Obstetrics and Gynaecology. Ten students, who do not receive a salary, are currently enrolled full-time (in 2006), and receive a certificate on completion. The number of positions for postgraduate clinical training varies from year to year, and will be fixed by the VTH Board.

It is intended to activate clinical training programmes certified by European speciality colleges as soon as possible. However, at the moment, internships and residency programmes leading to specialist qualifications in the clinical and paraclinical fields are not available due to a lack of Diplomates to supervise training, and absence of funding.

The Faculty has '*Internes*' students, who are undergraduates students who volunteer to work within a section in research programmes and clinical services as a means of completing their thesis (*Tesi Laurea*), but these are not 'interns' in the customary meaning of the term.

12.2 Comments

Postgraduate Research Training

The Ph.D. programmes reflect the research strengths of the Faculty, and help inform undergraduate

teaching by incorporation of Ph.D. students into the clinical services. However, it needs to be kept in mind that a Ph.D. is a demanding research qualification, and that for the individuals concerned this work needs to be given clear priority over routine teaching and clinical commitments.

The quality and level of Ph.D. programmes varies according to the general level of the section in which it is based. It would be sensible to have a common standard, such as a joint introductory taught component (covering generic skills such as experimental design, statistics, technical writing, etc.) and a minimum publication requirement in terms of the number of papers and their impact factor.

The specialisation schools are enhanced by the good collaboration between the Faculty and the adjacent Zooprohylactic Institute.

Postgraduate Clinical Training

The current postgraduate volunteer system is ultimately unsatisfactory even if inexpensive, and the Faculty should aim to replace it with a more structured system of internships, perhaps using clinical income to pay stipends (see also Chapter 3). There were concerns that graduates who volunteer for the year-long training positions in the clinical areas were not always receiving the training and feedback they deserve.

The lack of internships and residencies impairs the Faculty's ability to raise the standards of patient care and teaching within the VTH. Whilst they would undoubtedly enhance the VTH, they cannot be introduced until more European or American Diplomates are employed. The Faculty has deliberately invested in new and keen clinical staff, and actively encourages such developments through study outside Perugia. Yet progress is slow, and a more structured plan may be required. A temporary solution may involve using qualified clinicians (Diplomates) on sabbatical from other schools, to allow both intra-mural training of staff and periods of extra-mural study.

12.3 Suggestions

- 12.1 The Faculty and VTH should aim to replace the unpaid volunteer graduates working in the clinics with a structured system of internship and residency training programmes that are clearly aimed at imparting a higher level of skill and knowledge (e.g. European Diplomate level).
- 12.2 The FVMP should establish a minimum common requirement for Ph.D. work, such as a shared taught component covering generic research methodologies and a minimum publication requirement.

The need to have more European Diplomates on staff, which is a prerequisite for compliant residency positions, has been mentioned in Section 6.2.

13. RESEARCH

13.1 Findings

Research (both basic and applied) is mentioned as one of main Faculty objectives. Although there is a Committee for research development that studies and suggests proposals to be submitted at national and international levels, research is primarily decided upon and organised at section level, reflecting the previous structure of institutes.

The Faculty remarks that involvement of undergraduate students in research is quite limited during the first four years of the course. Students with an interest in veterinary research can participate in such activities within the departments and clinics, under the supervision of a staff member. This can include electing to prepare a dissertation based on experimental data as their graduate thesis (See Section 4.1). Approximately half the students choose experimental work, the ratio of students choosing between a literary review or experimental work being around 60:40 and 40:60 in theoretical and clinical subjects respectively.

The curriculum load of didactic duties and examinations is cited as a major factor limiting student participation in research, although the decrease in availability of public funds also plays a role.

There is no specific teaching of methodology of science.

13.2 Comments

Although there is considerable variability in level, the sections of the Faculty are in general active in research, raise funds by applying to different granting agencies and other bodies. The money obtained for research is partly used for improving the level of undergraduate training (equipment of teaching laboratories, chemical and other material used for training, animals kept at the faculty farm).

Different teams publish with various intensity and in journals of various quality. Some clinical teams put more emphasis on presenting the results of their work on conferences but many of them publish in prestigious journals.

Research premises are in general of a good standard, often better equipped than the teaching laboratories. Some of the departments are planning to get accredited at national level and/or to obtain an ISO certificate.

In general, there is no doubt that the Faculty is an active research institution. Research money is a substantial resource for the Faculty as a whole, including its teaching activities. It is very positive that approximately one half of the undergraduate students submit a diploma thesis based on experimental approaches, regardless of their variable quality.

The standard of research in terms of the quality of publications is variable but in general very good. However, there is no apparent effort to promote Faculty-wide and/or university collaboration, coordination and integration of research activities. The research is fragmented due to historical reasons, personal preferences, opportunistic approaches, etc.

There is also no apparent specific strategic planning of research at Faculty level. Besides its impact on career development and additional fund raising, there is no specific motivation and/or appreciation of a good quality research.

13.3 Suggestions

- 13.1 The Faculty should promote faculty and interdisciplinary collaboration, coordination and integration of research activities by defining a Faculty research strategy and priorities, as well as the ways of motivating teams and persons to develop them within the Faculty. The Committee for research development would be an appropriate structure to accomplish this task.

CONCLUSIONS

The Faculty of Veterinary Medicine of Perugia has made some commendable improvements since the last evaluation visit in 1998. The most noticeable and important change is the addition of a brand-new Veterinary Teaching Hospital. It was very positive to hear that further investment and renovation is planned. The team was also pleased to note the reduction in student intake this year, after previous rises. The Faculty has continued to develop good relations with the adjacent zooprophyllactic institute, practitioners, and the veterinary administration, as well as within the Faculty. It also has the advantage of being a long-established and scientifically productive faculty in a beautiful and historic town, whilst benefiting from an influx of many young, well-qualified and motivated new staff.

The Faculty now has a very compact organisational structure of two departments. However, the integration of activities that this implies needs to be reinforced and completed. The staff and section of the FVM need to think and work more as a 'whole' Faculty rather than continuing the mentalities and working patterns of the former institutes. The teaching, research, and service activities of the departments, sections and staff within the FVMP should be derived from and reflect a clear mission statement of the main roles and activities of the Faculty as a body.

Full and functional integration is especially needed in clinical activities. The new Hospital provides a physical and organisational focus for clinical work, and has catalysed cooperation between some of the discipline-based sections. However, the full merging of clinical work into species-based clinics – i.e. equine, small animal and farm animal - needs to be a primary Faculty goal. This should encompass physical reorganisation and renovation in the most logical and functional way for species-based clinics, such as renovating and transforming the old and under-used ground floor clinics into the new small animal surgical unit.

The veterinary course is largely defined through a national curriculum. Unfortunately, the most recent version of this has major conceptual flaw in that the 5th (final) year is largely taken up by electives, the preparation of a diploma thesis, and 6 months of generally extramural placements, much of which work was previously undertaken after graduation. This means that the core intramural teaching has been shortened to well under 5 years, below the minimum required under European law, and too short a time to cover the necessary veterinary material.

Although changes since 1998 have led to a welcome increase in the amount of practical work, the proportion of such work in general remains very low, especially in early years. Furthermore, some sessions classified as practical work were demonstrations or videos. There needs to be an increase in the amount of practical and small group work, and this should have clear objectives and direction, and require active participation by all students.

The need to reinforce practical training highlights the fact that veterinary training is inevitably one of the most expensive forms of education. The consumables and transport required, the need for intensive small group teaching, and the necessity of maintaining a high level of clinical services mean that it requires a high level of resources. This is not recognised by the authorities in terms of the current system of funding, with teaching costs often having to be met out of departmental income. More equipment for practical teaching, and more and larger shared teaching laboratories, also seems needed.

In its current form, the course is a heavy didactic load for students, and the teaching schedule leaves insufficient time for self-directed learning. The Faculty and its staff need to make determined efforts to systematically reduce the content of each subject and the quantity of lectures, to counter the natural tendency to continuously add more material. This should be coupled with an explicit strategy of developing self-directed learning in the teaching and examinations; "*it is not important what it taught – it is important what is learned*". Library and computing resources accordingly need attention to support this approach, with open access to international bibliographic and computing facilities.

Within the overall guidelines of the national curriculum, the teaching of the course is parcelled out to different sections to teach as they decide. There is not any clear central control or overall direction to either the content or structure of the training. In some fields, this amplifies the weakness in practical

work. For example, there is a clear need to increase anatomical dissection work and to have more activity in clinical obstetrics and gynaecology. On the other hand, it should be noted that some of the teaching in the applied areas, such as anaesthesiology, food safety, and equine work, is of a notable standard.

More generally, there was a need for more interdisciplinary teaching, and ‘top-down’ integration and coordination between the different subjects to remove overlaps and gaps in the teaching and ensure all topics are covered in a balanced and appropriate way. Curricular and teaching coordination should in addition aim to interrelate subjects, giving pre- and paraclinical subjects a clear link to applied activity. In this respect, one very clear veterinary responsibility is to ensure that animal health, productivity and the quality and safety of food form a continuum in the ‘farm to fork’ approach.

Active and comprehensive clinical services are essential to a veterinary Faculty and its teaching. The team was pleased to note the new clinical facilities, and looks forward to their further development. The open consultation hours should be extended and the level of hospitalisation increased to make fuller use of these excellent premises and provide a greater range and continuity of training opportunities. The Faculty should also plan to raise the level of professionalisation, both through the continued development of central services of a high standard - anaesthesia/intensive care, diagnostic imaging service, central pharmacy, diagnostic laboratories – and by extending the specialisation it offers. The efforts staff put into improving clinical activity, such as high quality clinical teaching, or work towards European Diplomate status, should be encouraged and rewarded.

Clinical training in the small animal and equine area is in general satisfactory, and further development of the hospital and caseload should enhance this. For example, structured full-day participation in clinical work, case responsibility and verified student ‘log-books’ could be introduced. However, there is a serious weakness in the caseload and hands-on teaching of the clinical aspects of obstetrics and reproduction in all species. A particular effort and reorganisation seems to be required to improve the clinical work and training in this field.

The team also has to express concern about the training on farm animals within the discipline-based curriculum. The mobile clinic is not fully developed or regularly attending farms or production animals, and does not provide students with a good view of farm practice. This gap is not bridged from the animal production side, as this teaching currently concentrates on the classical zootechnical aspects, and does not comprehensively cover the management of health or other applied aspects of farm animal veterinary activity. Private practitioners provide students with some exposure, but this is not a substitute for a structured teaching programme covering production animals.

The Faculty therefore needs to establish a focal point and clear responsibility for covering the health and productivity of farm animals and the associated clinical work. Hospital-based farm animal work is unlikely to provide sufficient access to caseload, and so the Faculty needs to focus its efforts on building up an active interdisciplinary Mobile Clinic. This should provide both an integrated and systematic herd health advisory service and routine clinical treatment on working farms in the region, and be at the heart of the teaching on animal production and health. The teaching of an analytical proactive approach, including the relative costs of ill-health compared with treatment strategies, should be a priority. The teaching farm is an asset that should be given a clear teaching function as its primary role, so that it can be developed and used for production animal work to the maximum extent.

In the past decade, the Faculty of Veterinary Medicine of Perugia has dealt with many shortcomings to establish a sound basis for veterinary training. Some challenges remain, not all of them unique to Perugia or originating from within the Faculty. With its new staff, facilities and departmental structure the FVMP is well placed to continue this progress.

SUMMARY OF SUGGESTIONS

1/ Suggestions which, if not implemented, mean that the establishment does not reach the minimum level specified in the EU veterinary training directives (Directive 78/1027/EC and its appendix) as interpreted in the 'Guidelines, requirements and main indicators' (contained within document XV/E/8488/2/98).

4.13 The training programme covering production animal veterinary activity must be improved to provide students with the basic skills and knowledge of farm animal medicine, surgery and management of health and productivity of all the major species.

4.14 The practical clinical training in obstetrics and gynaecology must be improved.

2/ Suggestions whose implementation does not effect the conformity of the teaching at the University with EU veterinary training directives as interpreted in the 'Guidelines, requirements and main indicators'.

1. OBJECTIVES

- 1.1 The Faculty should elaborate a mission statement that should provide a 'route map' for the Faculty as a whole and its component departments and sections.
- 1.2 The roles and objectives of the Faculty should include aiming to be a regional focus and centre of excellence for veterinary services, such as clinical and diagnostic work.

2. ORGANISATION

- 2.1 The Faculty and its component sections should continue to make systematic and determined efforts to genuinely and fully integrate the departments and their activities under the new structure.
- 2.2 The Heads of Department should have a significant role in the management and decision-making process at Faculty level.
- 2.3 There should be a Faculty body with the authority to shape and direct the teaching of the veterinary curriculum and its component disciplines, and the interaction between different disciplines to ensure the course has a clear structure, applied orientation and comprehensive coverage.
- 2.4 The Faculty should look at reducing the number of committees and councils to make its functioning more efficient.
- 2.5 Representatives of the veterinary profession should be included within the governing or advisory bodies of the Faculty, to provide an external view

3. FINANCES

- 3.1 The University system of financial allocation should take full and proper account of the actual cost of training, in particular to adequately fund a well-structured programme of practical and clinical work.
- 3.2 The Faculty and University need to ensure that there is budgetary provision to provide for the purchase of more laboratory equipment for practicals.
- 3.3 The Faculty should have more flexibility regarding the use of revenue from clinical and diagnostics work, which should be reinvested in equipment, additional staff and payments for out of hours duties and higher skills.

4. CURRICULUM AND TEACHING

4.1 GENERAL

- 4.1 Veterinary training has to comprise at least 5 academic years of structured full-time instruction within a veterinary faculty or equivalent academic establishment.
- 4.2 The amount of work of a practical nature has to be increased, and given a clear structure aligned to the needs of subsequent disciplines and/or mainstream professional veterinary activity.
- 4.3 The teaching load should be reduced through a significant decrease in the number of lectures and rigorous review of the subject content, putting the emphasis on self-directed learning.
- 4.4 Environmental protection, herd health and preventive veterinary medicine should be included in the curriculum either as specific subjects or as part of existing disciplines with appropriate coverage.
- 4.5 The Faculty should provide overall guidance and direction to the veterinary course and explicitly encourage interdisciplinary teaching and promote active horizontal and vertical interlinking of content.
- 4.6 The final year of studies should be organised as a comprehensive system of full-time intramural rotations in the applied areas (clinical, animal health, food safety, pathology, etc.).
- 4.7 A structured and obligatory system of extramural vacation work should be considered to supplement the core training.

4.2 BASIC SUBJECTS AND BASIC SCIENCES

- 4.8 The teaching of anatomy needs to be modernised and given a clearly applied approach, with a much greater component of practical work, in particular dissection.

4.3 ANIMAL PRODUCTION

- 4.9 The amount of practical and tutorial work in the animal production disciplines should be substantially increased, and the number of lectures significantly reduced.
- 4.10 The teaching in the field of animal production should be oriented towards the applied aspects of professional veterinary activity and be clearly linked to the training on farm animal health and the safety and quality of food of animal origin, in the 'farm to fork' approach.
- 4.11 The animal production has to include and be oriented towards preventive veterinary medicine, in the sense of a holistic and proactive approach to the management of the health and productivity of animal herds.
- 4.12 The Faculty should consider supplementing the exposure to practical animal handling and management on a farm, through extramural vacation work on farms early in the course.

4.4 CLINICAL SCIENCES

- 4.13 *(Category 1 suggestion)*
- 4.14 *(Category 1 suggestion)*
- 4.15 The proportion of intramural work in the curriculum, and the level of Faculty oversight of extramural work, should be increased so that each student receives an acceptable and validated level of structured clinical training in all major species and disciplines.
- 4.16 The clinical training should be developed and structured through giving students greater case responsibility and a clear and documented set of clinical procedures in which they need experience and demonstrable competence (an individual 'log-book'). This implies attendance at the clinics and VTH during the full working day.
- 4.17 The Faculty should introduce phantom models for assisting teaching, in particular regarding species and

procedures to which students currently have minimal exposure.

4.5 FOOD HYGIENE

- 4.18 The Faculty should seek to include some practical work in a poultry slaughterhouse in the programme taken by all students.
- 4.19 Practicals on chemical hazards in foods (drug residues, mycotoxins, pesticides, etc) should be extended to all students.
- 4.20 The teaching in food hygiene should be coordinated with courses dealing with animal production, veterinary public health, pharmacology, and toxicology in a modern “farm to form” approach.
- 4.21 The mission statement of the Faculty and departments should reflect the role of veterinarians as health professionals, and as far as the teaching in food hygiene is concerned, students should be provided with a real knowledge of the different veterinary activities in the public health system.

5. TEACHING: QUALITY AND EVALUATION

- 5.1 To give teaching evaluation more effectiveness, the Faculty body with authority to direct the curriculum should also be able to direct how in general a subject is presented to ensure at least a basic level of effectiveness and relevant learning value.
- 5.2 The integration of disciplines and course content should be used as a basis for extending problem-oriented and case-based teaching to the pre- and paraclinical disciplines.
- 5.3 The system of prerequisites should be reinforced, so that students may not enrol for subjects in a later year unless and until they have acquired 80 – 90% of the credits from the preceding year, and any foundation subjects that constitute a necessary basis for a later discipline.
- 5.4 The number of examination retakes permitted should be reduced, so that students who manifestly do not have the motivation or ability to progress through veterinary studies have the opportunity to seek a different career.
- 5.5 In line with changes to the teaching, the examination systems should be developed so that they test skills in the ability to acquire and apply knowledge, not primarily the capacity to memorise.
- 5.6 The Faculty should have a system of external examiners and/or external review of the content and examination of a discipline, to ensure this remains relevant and proportionate to its application in later subjects or professional activity.

6. PHYSICAL FACILITIES AND EQUIPMENT

- 6.1 The programme of refurbishment and renovations should be continued, in particular favouring bringing into service larger laboratories for shared use.
- 6.2 There should be a plan and clear budget line for equipping teaching facilities, in particular to improve practical teaching.
- 6.3 The activities and facilities of the previous institutes should be systematically integrated to make better use of physical (as well as human) resources.
- 6.4 The University farm should be clearly identified as a teaching resource and used to the maximum for applied training on production species.
- 6.5 The renovation work at the University Farm should be continued, and the range of species and housing systems extended.
- 6.6 The Faculty should continue to physically and organisationally integrate clinical activities along species-based lines, in particular:

- Integrate small animal obstetrics and gynaecology into the VTH, to improve and professionalise the provision for clinical work in this field;
 - Establish a clear focal point for production animal clinical and health work, including a fully functional and active mobile clinic dealing with both single animal work and proactive herd-health management programmes.
- 6.7 The refurbishment and reorganisation of the older clinical premises should be continued in the most logical and functional way for species-based clinics, in particular:
- Renovation of the equine clinics as foreseen, with refurbishment of the lameness examination area;
 - Provision of modern small animal premises, which should best be done by remodelling the old and currently underused obstetrics clinics on the ground floor, rather than upstairs;
 - Provision of a dedicated local of production animal work, primarily as a 'base' for the Mobile Clinic;
- 6.8 The isolation facilities for small and large animals should be improved, through refurbishment of the old isolation stables and the creation of a dedicated facility for dogs, cats and other pets.
- 6.9 The access and parking for clients should be improved, and steps taken (e.g. controlled access) to ensure this does not become impeded with non-client vehicles.
- 6.10 The opening hours of the Veterinary Teaching Hospital should be extended to increase the clinical caseload and the opportunities for and continuity of student training.
- 6.11 The Veterinary Teaching Hospital, Faculty and University should seek to develop the level of specialisation through:
- Supporting and encouraging clinical staff seeking to gain European Veterinary Specialist status;
 - Improving provision of intermittent clinical services, e.g. dermatology, and seeking to add new competencies
- 6.12 The Veterinary Teaching Hospital should have more autonomy and flexibility to reinvest the income generated into equipment, personnel and payments for out of hours duties and higher skills.
- 6.13 The Veterinary Teaching Hospital should have a centralised pharmacy, both to professionalise this activity, and as part of wider effort to build closer links to paraclinical disciplines to improve teaching, research and clinical services.

7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

- 7.1 There should be much greater provision and use of animal material in anatomy (especially dogs), in particular for use in dissection, but also for live anatomy, imaging anatomy, and other aspects that clearly have applied value.
- 7.2 There needs to be much greater access to farm herds of all species for integrated training on applied animal health and productivity, and to cattle specifically for both herd-health and single animal clinical work.

8. LIBRARY AND EDUCATIONAL RESOURCES

- 8.1 The library should increase the space available for use by students, and it has to extend the opening hours to Saturday mornings, implying reinforcement of the library staff.
- 8.2 The Library should switch from a counter-based service for specific requests to one where books are openly available for consultation.
- 8.3 The range, number and availability of international textbooks should be improved, to provide an externalised basis for teaching.
- 8.4 The Library should stock an appropriate number of the most relevant (international) textbooks, generally meaning at least one copy for borrowing along with a reference copy. The origin, logic and validity of any 'legal' impediment to a University maintaining such a basic educational resource should

be rigorously questioned.

- 8.5 The provision and accessibility of computers should be increased.

9. ENROLMENT AND ADMISSION REQUIREMENTS

- 9.1 There should be a greater degree of selectivity in the entrance process, to ensure that all students starting the veterinary course genuinely have an adequate and functional grounding in the basic subjects (mathematics, biology, chemistry, physics) and the motivation and ability to complete veterinary studies.
- 9.2 Students should be required to proceed through and complete the veterinary studies in a structured and timely manner, and lose all credits if they are no longer academically active on the course.
- 9.3 There should be effective mechanisms to address the oversupply of veterinary faculties and graduates nationally.

10. ACADEMIC AND SUPPORT STAFF

- 10.1 The Faculty staff should be reinforced, in particular to provide adequate coverage of production animal health management.
- 10.2 The additional duties and requirements that are intrinsic to a clinical academic position should be recognised financially and/or in terms of career advancement.

11. CONTINUING EDUCATION

- 11.1 In collaboration with local veterinary associations, the FVMP should seek to develop its continuing professional education activities.

12. POSTGRADUATE EDUCATION

- 12.1 The Faculty and VTH should aim to replace the unpaid volunteer graduates working in the clinics with a structured system of internship and residency training programmes that are clearly aimed at imparting a higher level of skill and knowledge (e.g. European Diplomate level).
- 12.2 The FVMP should establish a minimum common requirement for Ph.D. work, such as a shared taught component covering generic research methodologies and a minimum publication requirement.

13. RESEARCH

- 13.1 The Faculty should promote faculty and interdisciplinary collaboration, coordination and integration of research activities by defining a Faculty research strategy and priorities, as well as the ways of motivating teams and persons to develop them within the Faculty. The Committee for research development would be an appropriate structure to accomplish this task.

Annex I – Roles of the Committee for Didactics

The Committee for Didactics has the following purposes:

- a) to present the Dean with an annual report about teaching, including both statistical and cognitive data and proposals to solve difficulties. The report will be discussed in the Degree Course Council before the beginning of the next academic year;
- b) to make proposals to the Degree Course Council as regards the maximum number of enrolments for each study course based on the lecturers and facilities available;
- c) to make justified proposals about course activation and changes;
- d) to formulate standards in order to validate courses, exams and formative credits for students coming from other courses or faculties and to evaluate periods spent at foreign universities, with particular attention to European exchange programmes;
- e) to make suggestions and proposals to the Faculty in order to distribute teaching duties fairly;
- f) to assess, together with the Degree Course Council, general performance of the students, degree and diploma exams, also in order to improve them and standardise evaluation criteria;
- g) to give an opinion on programme co-ordination and on the teaching calendar;
- h) to suggest a lesson time table;
- i) to oversee teaching evaluation made by students;
- j) to assess and improve tutorship activities;
- k) to acquire statistics on the study course to meet demands deriving from the labour market;
- l) to promote surveys and initiatives in order to improve the quality of teaching;
- m) to make proposals about the management of financial resources devoted to teaching;
- n) to promote and assess teaching experimentation;
- o) to protect students' rights;
- p) to coordinate teaching of new branches or "CIPs" (integrated professional courses) for the degree course or the diploma.